



**HEALTH AND SAFETY PLAN  
PRE-REMEDIAL SITE ASSESSMENT ACTIVITIES  
RARITAN BAY SLAG SITE  
OLD BRIDGE AND SAYREVILLE, NEW JERSEY**

Prepared for:

**U.S. Environmental Protection Agency**  
Region 2  
Edison, NJ 08837

Prepared By:

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EPA Contract No.: EP-W-06-072

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## SECTION I - APPROVALS

Prepared By: \_\_\_\_\_

Date \_\_\_\_\_

Kelli Lucarino  
Project Scientist

Approved By: \_\_\_\_\_

Date \_\_\_\_\_

Alana Garrison  
Health and Safety Officer

The signatures below indicate that the individuals have read and understood this Health and Safety Plan.

NAME	SIGNATURE	AFFILIATION	DATE
Dan Gaughan		Weston Solutions	
Kelli Lucarino		Weston Solutions	
Jeff Lynes		Weston Solutions	
Julissa Morales		Weston Solutions	
Scott Snyder		Weston Solutions	
Kristen Sharp		Weston Solutions	
Matt Foster		Weston Solutions	

## SECTION II - GENERAL

### 2.0 Introduction

This section of the Site Health and Safety Plan (HASP) document defines general applicability and general responsibilities with respect to compliance with Health and Safety programs for the pre-remedial field activities to be conducted as part of the Raritan Bay Slag Site (RBS) by Weston Solutions, Inc. (WESTON).

The purpose of this HASP is to define the requirements and designate protocols to be followed at the RBS Site during investigation and remediation activities. Applicability extends to all Government employees, contractors, subcontractors and visitors.

All personnel on site, contractors and subcontractors included, shall be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards of the operation. This HASP summarizes those hazards and defines protective measures planned for the site.

This plan must be reviewed and an agreement to comply with the requirements must be signed by all personnel prior to entering the exclusion zone or contamination reduction zone.

During development of this plan, consideration was given to current safety standards as defined by EPA/OSHA/NIOSH, health effects and standards for known contaminants, and procedures designed to account for the potential for exposure to unknown substances. Specifically, the following reference sources have been consulted:

- o OSHA 29 CFR 1910.120 and EPA 40 CFR 311
- o U.S. EPA, OERR ERT Standard Operating Safety Guides
- o NIOSH/OSHA/USCG/EPA Occupational Health and Safety Guidelines
- o (ACGIH) Threshold Limit Values

All visitors entering the contamination reduction zone and exclusion zone at the site will be required to read and verify compliance with the provisions of this HASP. In addition, visitors will be expected to comply with relevant OSHA requirements such as medical monitoring, training and respiratory protection (if applicable). Visitors will also be expected to provide their own protective equipment.

In the event that a visitor does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All non-conformance incidents will be recorded in the site logbook.



## 2.1 Proposed Site Activities

WESTON will collect soil, sediment, and surface water samples from the beach and park area of the site. Other activities will include photo documentation and recording of site features using Global Positioning System (GPS) technology. Air monitoring, using a personal data-RAM, will be performed. In addition, personal air monitoring for lead will be conducted for certain sample team members.

## 2.2 Emergency Telephone Numbers:

24-Hour National Response Center	1-800- 424-8802
24 Hour CHEMTREC	1-800-424-9300
24-Hour Agency on Toxic Substances & Disease Registry	404- 639-0615
24 Hour WESTON Medical Emergency Service	1-800- 847-4678
TSCA Hotline	202-554-1404(Weekdays)
Bureau of Alcohol, Tobacco&Firearms (Explosives)	1-800- 800-3855(Weekdays)
National Pesticide Information Service	1-800-858-7378(7 Days)
Superfund/RCRA Hotline	1-800-424-9346(Weekdays)
CMA Chemical Referral Center	1-800- 262-8200
National Poison Control Center	1-800- 942-5969
U.S. DOT	202-366-0656 (Day) 202- 426-2075 (Hotline)
NIOSH - Health Hazard Evaluation	513-841-4382(Weekdays)
OSHA - Health Response Team	801-487-0521(Weekdays)

## 2.3 WESTON Contacts:

### WESTON Program Manager

W. Scott Butterfield, CHMM  
205 Campus Dr.  
Edison, NJ 08837  
(732) 417-5828 (W)  
(609) 883-3199 (H)  
(732) 586-6047 (Cell)

### WESTON Health and Safety Officer

Alanna Garrison  
(732) 417-5893 (W)  
(732) 814-5111 (Cell)

### North East Division Safety Manager

Ted Blackburn  
(603) 656-5442 (W)  
(603) 860-4457 (Cell)

### Corporate Health and Safety Director

Owen Douglass  
610-701-3065 (W)

### PM / Site Health and Safety Officer

Dan Gaughan  
(732) 417-5869 (W)  
(732) 406-8640 (Cell)

### WESTON's Medical Director

Dr. Patrice Marshall, Qualisys  
(800) 874-4676  
Dr. Frank Mitchell (after hours emergency  
only) (404) 898-4723

### **SECTION III - HEALTH AND SAFETY PERSONNEL**

#### **3.0 Health and Safety Personnel Responsibilities**

The WESTON Project Manager (PM), the WESTON Program Manager, and WESTON Health and Safety Officer, and all WESTON representatives share responsibilities for formulating and enforcing health and safety requirements and implementing the HASP.

#### **3.1 WESTON Project Manager**

The WESTON PM has the overall responsibility for the project and to assure that the goals of the site assessment project are attained in a manner consistent with the HASP requirements. The PM will coordinate with the designated Site HSO and the WESTON contract HSO to assure that the goals of the PA, SI, SIP, ESI, IA, or other site activity are completed in a manner consistent with the HASP.

#### **3.2 WESTON Corporate Health and Safety Director (CHSD)**

WESTON's Health and Safety Supervisor is responsible for establishing health and safety policies and procedures, and for the overall administration of the corporation's health and safety program.

#### **3.3 WESTON Health and Safety Officer (HSO)**

The WESTON HSO shall be responsible for overseeing development of the HASP and shall ensure that the HASP complies with all federal, state and local health and safety requirements. The HSO provides technical and administrative support for the WESTON Health and Safety Program.

#### **3.4 Designated Site HSO**

The designated Site HSO has total responsibility for ensuring that the provisions of this HASP are adequate and implemented in the field. Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, it is vital that personnel assigned as HSO be experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120.

## SECTION IV - SITE HISTORY AND PHYSICAL DESCRIPTION

### 4.0 Location

The RBS Site consists of two locations along the Raritan Bay where slag was deposited approximately 40 years ago. One location is the seawall situated in Laurence Harbor at the base of the Old Bridge Waterfront Park and the other is the jetty and adjoining waterfront area on the western edge of the Cheesequake Creek inlet in Sayreville (Figure 1).

### 4.1 Description

The RBS Site (CERCLIS ID No. NJN000206276) is approximately 1.3 miles in length and consists of the Laurence Harbor seawall in Old Bridge Waterfront Park and portions of the area in and around the Cheesequake Creek inlet, both located on Raritan Bay. During the replacement of a sewer line, fill and battery casings were observed in the Margaret's Creek area, which is located east of the Laurence Harbor seawall. The Margaret's Creek area was proposed for acquisition by the State of New Jersey under the Green Acres Program in 2006.

During a preliminary assessment phase of the Green Acres review process, historical aerial photos revealed the filling of approximately 20 acres of that area by 1974. Further investigation by the New Jersey Department of Environmental Protection (NJDEP) found slag deposits along the seawall at the Old Bridge Waterfront Park. The NJDEP referred the seawall and the area around the Cheesequake Creek inlet to EPA for a removal action, while maintaining control of the Margaret's Creek Site.

In September 1972, the NJDEP was advised by a local environmental commission member that lead-bearing waste material was being disposed of along the Laurence Harbor beachfront on Raritan Bay. Also by letter to NJDEP dated December 7, 1972, NL Industries, Inc. (NL) acknowledged that "slag which consists of non-recoverable low yield metallic waste from blast furnace and blast furnace rubble are disposed of by Liberty Trucking Company at their property in Madison Township, Route 35, New Jersey." The Liberty Trucking Company property was located in the Margaret's Creek area. Madison Township is now known as Old Bridge Township. NL used battery plates from lead/acid storage batteries as the principal feed material for the blast furnace at its plant in Perth Amboy.

### 4.2 Regulatory History

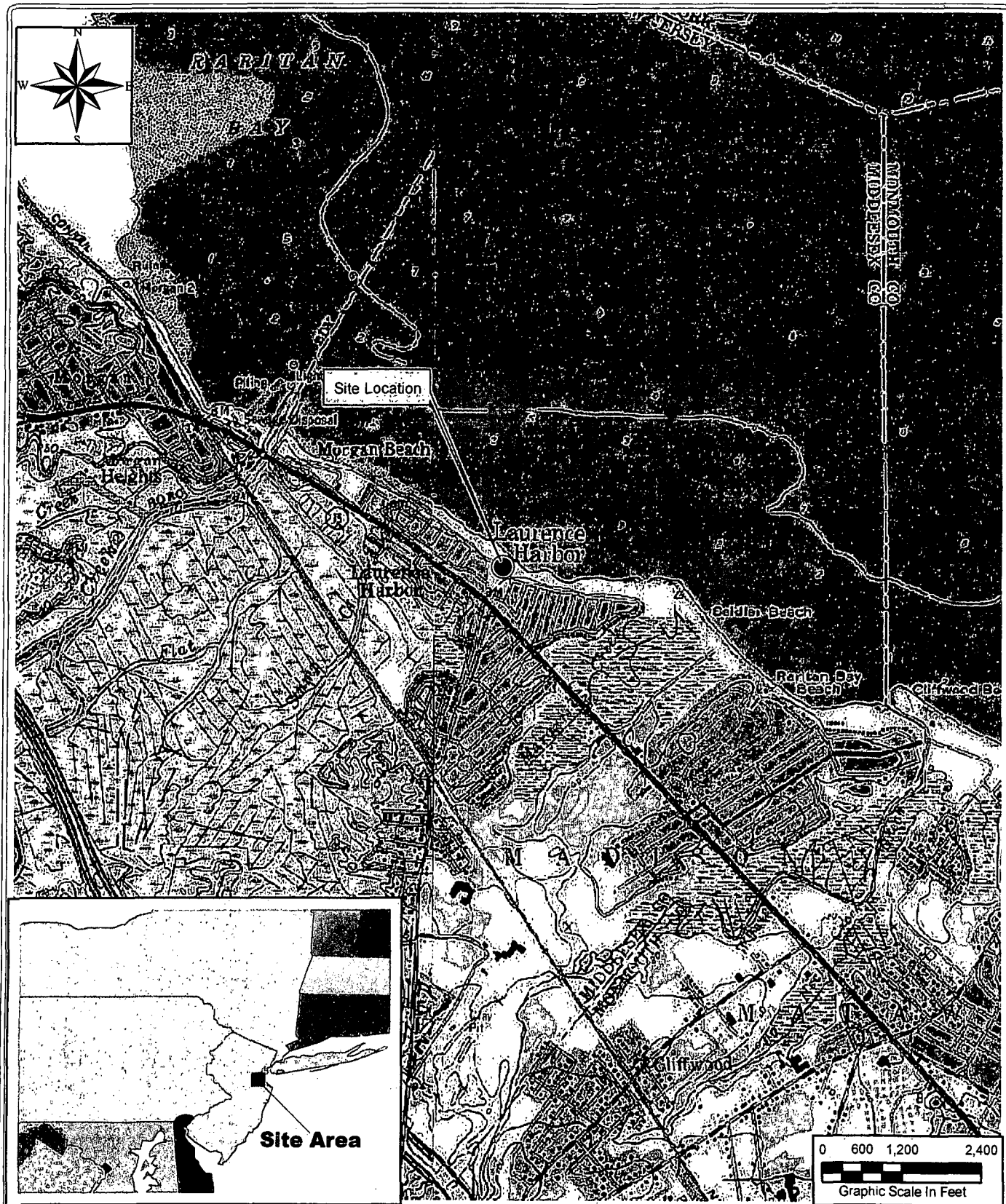
On December 13, 2006, the NJDEP conducted a limited site investigation at the Margaret's Creek Site to visually characterize fill material via excavation of test pits. Waste materials were evident in numerous locations across the surface of the site, including large quantities of what appeared to be shredded automotive battery casings and refractory brick and slag. On March 14, 2007, the NJDEP collected soil samples at the Margaret's Creek Site. Lead was detected at concentrations ranging from 701 to 146,000 parts per million (ppm).

On May 23, 2007, NJDEP conducted further soil sampling at the Margaret's Creek Site and the Laurence Harbor seawall. Antimony was detected at concentrations above state criteria, ranging from 17.8 ppm to 12,900 ppm. Arsenic was detected at concentrations ranging from

23.6 ppm to 3,350 ppm. Copper was detected at concentrations ranging from 4.2 ppm to 3,590 ppm. Lead was detected at concentrations ranging from 647 ppm to 142,000 ppm.

On July 24, 2007, NJDEP conducted another round of soil sampling in a preliminary attempt to identify the boundary of contaminated soils in public areas. Thirty-one locations were sampled from the 0-6 inch depth interval in the park area including an expanse of beach east of the footbridge over Margaret's Creek. Analysis of samples collected from the RBS Site indicated antimony at concentrations ranging from 0.42 ppm to 20.2 ppm. Arsenic was detected at concentrations ranging from 1.3 ppm to 24.5 ppm. Copper was detected at concentrations ranging from 3.5 ppm to 44 ppm. Lead was detected at concentrations ranging from 3.1 ppm to 545 ppm.

P:\SAT2\Raritan\_Bay\_Slag\MXD\05944\_RBS\_Site\_Loc.mxd



LEGEND:

● Site Location

National Geographic TOPOI U.S. Geologic Survey (USGS), 7.5 Minute Series (Topographic) Quadrangles: Keyport, NJ, 1977 and South Amboy, NJ, 1995.

PROJECT:

Raritan Bay Slag

CLIENT NAME:

EPA

TITLE:

Site Location Map  
Raritan Bay Slag  
Laurence Harbor, NJ

**WESTON**  
SOLUTIONS

DATE:

August 2008

FIGURE #:

1

## **SECTION V - SITE-RELATED INCIDENTS, COMPLAINTS, AND ACTIONS**

### **5.0 General**

The RBS Site consists of two locations along the Raritan Bay where slag was deposited approximately 40 years ago. One location is the seawall situated in Laurence Harbor at the base of the Old Bridge Waterfront Park and the other is the jetty and adjoining waterfront area on the western edge of the Cheesequake Creek inlet in Sayreville. Previous sampling by the NJDEP at the Laurence Harbor seawall has revealed the presence of elevated levels of lead, arsenic, antimony, and copper.

## SECTION VI - CHEMICAL CONTAMINANTS DATA

### 6.0 Introduction

This section outlines the potential chemical hazards which workers may be exposed to during work on this project. This is a representative list of known and suspected hazardous substances at this site. Other chemicals may be present at the site which have not yet been identified. Unless a material is identified by a valid label, it shall be considered as unknown, and handled as such.

### 6.1 Chemical Data Information

<b>Contaminant/ Source (conc.)</b>	<b>PEL/TLV/IDLH/ Routes of Exposure</b>	<b>Symptoms of Exposure</b>	<b>First Aid Procedures</b>
Antimony	OSHA PEL – 0.5 mg/m <sup>3</sup> ACGIH TLV - 0.5 mg/m <sup>3</sup> IDLH - 50 mg/m <sup>3</sup> Routes of Exposure –The substance can be absorbed into the body by inhalation of its aerosol.	Mechanical irritation to the eyes, dermatitis, pneumoconiosis	fresh air; remove contaminated clothes; rinse skin, eyes, mouth; remove contact lenses; <b>Medical Attention</b>
Arsenic	OSHA PEL – 0.01 mg/m <sup>3</sup> ACGIH TLV - 0.01 mg/m <sup>3</sup> IDLH - 5 mg/m <sup>3</sup> Routes of Exposure –The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.	Irritation to the eyes, skin, respiratory tract, gastrointestinal tract, cardiovascular system, central nervous system, kidneys, possible death	fresh air; remove contaminated clothes; rinse skin, eyes, mouth; remove contact lenses; <b>Medical Attention</b>
Copper	OSHA PEL – 1.0 mg/m <sup>3</sup> ACGIH TLV - 0.2 mg/m <sup>3</sup> IDLH - 100 mg/m <sup>3</sup> Routes of Exposure –The substance can be absorbed into the body by inhalation and absorption.	Metal fume fever, skin sensitization	fresh air; remove contaminated clothes; rinse skin, eyes, mouth; remove contact lenses; <b>Medical Attention</b>
Lead	OSHA PEL – 0.05 mg/m <sup>3</sup> ACGIH TLV - 0.05 mg/m <sup>3</sup> IDLH - 100 mg/m <sup>3</sup> Routes of Exposure – The substance can be absorbed into the body by inhalation and absorption.	Long term exposure symptoms such as effects to the blood bone marrow and central nervous system, are more likely than short term exposure	fresh air; remove contaminated clothes; rinse skin, eyes, mouth; remove contact lenses; <b>Medical Attention</b>

Previous sampling by NJDEP at the Laurence Harbor seawall indicated concentrations of antimony as high as 12,900 ppm, arsenic as high as 3,350 ppm, copper as high as 3,590 ppm, and lead as high as 146,000 ppm.



## 6.2 Characteristics

Identify and attach Material Safety Data Sheets (MSDSs) in Appendix A for all known or suspected chemical hazards. In Appendix B, also include MSDSs for chemicals utilized in conducting site assessment sampling activities.

### Hazardous Substance

see attached chemical  
safety cards

(\* ) State \_\_\_\_\_  
pH \_\_\_\_ FP \_\_\_\_ UEL \_\_\_\_  
Auto.Ig \_\_\_\_ BP \_\_\_\_ MP \_\_\_\_  
Incompatible with -  
\_\_\_\_\_  
\_\_\_\_\_  
Sp.Gr \_\_\_\_ Vap.D \_\_\_\_ IP \_\_\_\_  
Vap.P \_\_\_\_ H<sub>2</sub>O Sol. \_\_\_\_  
Other \_\_\_\_\_, \_\_\_\_\_

-----  
\* E = Explosive, F = Flammable, C = Corrosive, R = Reactive, W = Water-reactive, O = Oxidizer, Ra = Radioactive. State = normal physical state at site.

## 6.3 Sources

The source currently being evaluated is soil, sediment, and surface water possibly contaminated by slag from a possible former blast furnace.

## SECTION VII - HAZARD ASSESSMENT

### 7.0 General

This HASP defines the hazards and methods (engineering and administrative controls as well as personal protective equipment) to protect personnel from those hazards identified in the background information. The evaluation of hazards is based upon the knowledge of site background information and anticipated risks posed by the specific operation.

The following subsections describe each task/operation in terms of the specific associated hazards. In addition, the protective measures to be implemented during completion of those operations are also identified.

### 7.1 Task-Specific Risk Analysis

#### Sampling and Reconnaissance

WESTON will conduct soil, sediment and surface water sampling in a marine environment. Other activities will include photo documentation and recording of site features using GPS technology.

Sampling Hazard	Engineering Control	Administrative Control	Personal Protective Equipment	Weston FLD #
<b>PHYSICAL</b>				
Slip/trip/fall	Identify and field mark hazards	Use buddy system	Safety boots	11, 12
Heat Stress	Limit exposure to elements through use of tent or shielding; use of sunscreen	Schedule rest breaks accordingly to prevent overexposure to elements; Use buddy system to monitor	Light clothing	05
Inclement weather	Limit exposure to elements through use of tent or shielding	Schedule rest breaks accordingly to prevent overexposure to elements	Overboots; rain gear	02
Rough terrain	Identify and field mark hazards	Use buddy system	Safety boots	11
Site security	N/A	Use buddy system at all times; inform local authorities of site activities prior to commencement of investigation	N/A	14
Remote area	N/A	Use buddy system at all times; maintain contact with field team lead through use of telephone or radio	N/A	2, 11, 14

Wet Feet	Limit exposure to elements through use of tent or shielding.	Schedule rest breaks accordingly to prevent overexposure to elements	Overboots	02
Working near water	Flotation devices shall be present at site.	Use buddy system at all times; maintain contact with field team lead through use of telephone or radio	Personal Flotation Devices (PFDs) shall be present and readily accessible.	19
<b>CHEMICAL</b>				
Control of Exposure to Lead	Cordon off work area to prevent unauthorized access	Ensure employees are enrolled in medical monitoring program; ensure on-site employees receive lead and arsenic awareness training; ensure on-site employees receive baseline and follow-up blood monitoring; current fit test; ensure exposure monitoring performed for characterization and worst-case exposure assessment	Long sleeve shirts and pants; gloves; chemical-resistant boot covers; respirator as necessary	46, 59
Control of Exposure to Arsenic	Cordon off work area to prevent unauthorized access	Ensure employees are enrolled in medical monitoring program; ensure on-site employees receive lead and arsenic awareness training; current fit test; ensure exposure monitoring performed for characterization and worst-case exposure assessment	Long sleeve shirts and pants; gloves; chemical-resistant boot covers; respirator as necessary	59
Control of Exposure to Antimony	Cordon off work area to prevent unauthorized access	Ensure employees are enrolled in medical monitoring program; ensure on-site employees receive lead and arsenic awareness training; current fit test; ensure exposure monitoring performed for characterization and worst-case exposure assessment	Long sleeve shirts and pants; gloves; chemical-resistant boot covers; respirator as necessary	59
Control of Exposure to Copper	Cordon off work area to prevent unauthorized access	Ensure employees are enrolled in medical monitoring program; ensure on-site employees receive lead and arsenic awareness training; current fit test; ensure exposure monitoring performed for characterization and worst-case exposure assessment	Long sleeve shirts and pants; gloves; chemical-resistant boot covers; respirator as necessary	59
<b>BIOLOGICAL</b>				
Insects	Remain safe distance from suspected hazards	Use buddy system/self-check to monitor for exposure	Long sleeve shirts and pants; netting; insect repellant	43
Poisonous plants	Remain safe distance from suspected hazards	Use buddy system/self-check to monitor for exposure	Long sleeve shirts and pants	43
Animals	Remain safe distance from suspected hazards	Adhere strictly to avoidance policy	N/A	43

<b>RADIOLOGICAL</b>				
Sunlight	Limit exposure to elements through use of tent or shielding	Use buddy system to monitor; SHSC to ensure use of proper work uniform and sunscreen as necessary	Proper work uniform	5

Note: All eating, drinking, smoking, application of cosmetics is prohibited in hot zone. Hand washing facilities must be made available in contamination reduction zone.

## **SECTION VIII - TRAINING AND MEDICAL REQUIREMENTS**

### **8.0 Training and Medical Requirements**

The following sections outline the training and medical surveillance requirements that must be met prior to individuals working on any known or suspected hazardous waste site.

### **8.1 Personnel Training Requirements**

Consistent with the OSHA 29 CFR 1910.120 regulation covering Hazardous Waste Operations and Emergency Response, all site personnel are required to be trained in accordance with the standard. At a minimum all personnel are required to be trained to recognize the on-site hazards, the provisions of this HASP, and the responsible personnel.

#### **8.1.1 Pre-assignment and Annual Refresher Training**

Prior to arrival on site, each employer will be responsible for certifying that his/her employees meet the requirements of pre-assignment training, consistent with OSHA 29 CFR 1910.120 paragraph (e)(3). The employer should be able to provide a document certifying that each general site worker has received 40 hours of off-site instruction, as well as a minimum of 3 days actual field experience under the direct supervision of a trained, experienced supervisor. Workers who are on site only occasionally to perform a specific limited task and who are unlikely to be exposed to hazardous substances over their PELs, are required to have a minimum of 24 hours of instruction off site and a minimum of 8 hours of supervised field experience. If an individual employee has work experience and/or training that is equivalent to that provided in the initial training, an employer may waive the 40-hour training so long as that equivalent experience is documented or certified. All personnel must also receive 8 hours of refresher training annually.

#### **8.1.2 Site Supervisors Training**

Consistent with OSHA 29 CFR 1910.120 paragraph (e)(8), individuals designated as site supervisors require an additional 8 hours of training.

#### **8.1.3 Training and Briefing Topics**

All site individuals will receive a pre-entry briefing by a qualified person. Topics to be discussed will be based on anticipated site hazards. All personnel shall be required to read and understand the requirements of the HASP prior to working on the project and will sign the HASP to indicate this has been completed. All site individuals will receive arsenic and lead awareness training prior to start of site activities in accordance with 29CFR1926.62 and 29CFR1926.1018.

## 8.2 Medical Surveillance Requirements

Medical monitoring programs are designed to track the physical condition of employees on a regular basis, as well as survey pre-employment or baseline conditions prior to potential exposures. The medical surveillance program is a part of each employer's Health and Safety program.

### 8.2.1 Baseline or Pre-assignment Monitoring

Prior to being assigned to a hazardous or a potentially hazardous activity involving exposure to toxic materials, the employee must receive a pre-assignment or baseline physical. The contents of the physical are to be determined by the employer's medical consultant. As suggested by NIOSH/OSHA/USCG/EPA's Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities, the minimum medical monitoring requirements for work at the site are as follows:

- Complete medical and work histories.
- Physical examination.
- Pulmonary function tests (FVC and FEV1).
- Chest X-ray (every 3 years).
- EKG.
- Eye examination and visual acuity.
- Audiometry.
- Urinalysis.
- Blood chemistry and heavy metals toxicology.

The pre-assignment physical should categorize employees as fit-for-duty and able to wear respiratory protection.

### 8.2.2 Periodic Monitoring

In addition to a baseline physical, all employees require a periodic physical within the last 12 months unless the advising physician believes a shorter interval is appropriate. The employer's medical consultant should prescribe an adequate medical which fulfills OSHA 29 CFR 1910.120 requirements. The pre-assignment medical outlined above may be applicable.

All personnel working in contaminated or potentially contaminated areas at the site must be able to verify currency (within 12 months) with respect to medical monitoring and training.

### 8.2.3 Site Specific Medical Monitoring

For activities at the RBS site, all WESTON employees will be required to undergo lead screening per 29CFR1926.62 prior to entering the Exclusion Zone or Contamination Reduction Zone, in addition to standard medical monitoring and

training requirements. Certain members of the actual sampling team will be monitored for lead exposure during sampling activities through collection of personal air samples.. Heat Stress will be specifically monitored on the site, see Section 11.7 for specific information.

After completion of on-site activities, all personnel will be required to undergo additional blood lead/zinc protoporphyrin monitoring to evaluate for potential lead exposure.

#### 8.2.4 Exposure/Injury/Medical Support

As a follow up to an injury or possible exposure above established exposure limits, all employees are entitled to and encouraged to seek medical attention and physical testing.

Depending upon the type of exposure, it is critical to perform follow-up testing within 24 to 48 hours. It will be up to the employer's medical consultant to advise the type of test required to accurately monitor for exposure effects.

#### 8.2.5 Exit Physical

At termination of employment or reassignment to an activity or location which does not represent a risk of exposure to hazardous substances, an employee shall require an exit physical. If his/her last physical was within the last 6 months, the advising medical consultant has the right to determine adequacy and necessity of the exit exam.

## **SECTION IX - ZONES, PERSONAL PROTECTION, AND COMMUNICATION**

### **9.0 Site Zones**

The three general work zones established at the Site are the Exclusion Zone, Contamination Reduction Zone, and Support Zone. A site map identifying the work zones will not generally be included in the HASP. The work zones will be determined in the field in accordance with HASP guidelines and marked out by the Site Manager prior to commencement of work activities.

#### **9.1 Exclusion Zone**

The Exclusion Zone (EZ) is defined as the area where contamination is either known or likely to be present, or because of activity, will provide a potential to cause harm to personnel. Entry into the Exclusion Zone requires the use of personnel protective equipment.

#### **9.2 Contamination Reduction Zone**

The Contamination Reduction Zone (CRZ) is the area where personnel conduct personal and equipment decontamination. It is essentially a buffer zone between contaminated areas and clean areas. Activities to be conducted in this zone will require personal protection as defined in the decontamination plan.

#### **9.3 Support Zone**

The Support Zone is situated in clean areas where the chance to encounter hazardous materials or conditions is minimal. Personal protective equipment is therefore not required.

#### **9.4 Personal Protection**

This section describes the general requirements of the EPA-designated Levels of Protection (A-D), and the specific levels of protection required for each task at the Site.

##### **9.4.1 Levels of Protection**

Personnel wear protective equipment when assessment activities involve known or suspected atmospheric contamination vapors, gases, or particulates; or the potential for direct contact with skin-affecting substances exists. Full facepiece respirators protect lungs, gastrointestinal tract, and eyes against airborne toxicant. Chemical-resistant clothing protects the skin from contact with skin-destructive and absorbable chemicals.

The specific levels of protection and necessary components for each have been divided into four categories according to the degrees of protection afforded:



- Level A: Should be worn when the highest level of respiratory, skin, and eye protection is needed.
- Level B: Should be worn when the highest level of respiratory protection is needed, but a lesser level of skin protection. Level B is the primary level of choice when encountering unknown environments and/or handling/sampling unknown materials.
- Level C: Should be worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is needed.
- Level D: Should be worn only as a work uniform and not in any area with respiratory or skin hazards. It provides minimal protection against chemical hazards.

Modifications of these levels are permitted, and routinely employed during site work activities to maximize efficiency. For example, Level C respiratory protection and Level D skin protection may be required for a given task. Likewise the type of chemical protective ensemble (i.e., material, format) will depend upon contaminants and degrees of contact.

The Level of Protection selection is based upon the following:

- o Type and measured concentration of the chemical substance in the ambient atmosphere and its toxicity.
- o Potential for exposure to substances in air, liquids, or other direct contact with material due to work being conducted.
- o Knowledge of chemicals on site, along with properties such as toxicity, route of exposure, and contaminant matrix.

In situations where the type of chemical, concentration, and possibilities of contact are unknown, the appropriate Level of Protection must be selected based on professional experience and judgment until the hazards can be better identified.

#### 9.4.2 Level A Personnel Protective Equipment:

- o Supplied-air respirator approved by the Mine Safety and Health Administration (MSHA) and National Institute for Occupational Safety and Health (NIOSH). Respirators may be positive pressure-demand, self-contained breathing apparatus (SCBA), or positive pressure-demand, airline respirator (with escape bottle for Immediately Dangerous to Life and Health (IDLH) or potential for IDLH atmosphere)
- o Fully encapsulating chemical-resistant suit
- o Coveralls
- o Long cotton underwear
- o Gloves (inner)

- o Boots, chemical-resistant, steel toe and shank (depending on suit construction, worn over or under suit boot)
- o Hard hat (under suit)
- o Disposable gloves and boot covers (worn over fully encapsulating suit)
- o Cooling unit
- o 2-way radio communications (intrinsically safe)

#### 9.4.3 Level B Personnel Protective Equipment:

- o Supplied-air respirator (MSHA/NIOSH approved). Respirators may be positive pressure-demand, self-contained breathing apparatus (SCBA), or positive pressure-demand, airline respirator (with escape bottle for IDLH or potential for IDLH atmosphere)
- o Chemical-resistant clothing (coveralls and long-sleeved jacket; hooded, one or two-piece chemical-splash suit; disposable chemical-resistant, one-piece suits)
- o Long cotton underwear
- o Coveralls
- o Gloves (outer), chemical-resistant
- o Gloves (inner), chemical-resistant
- o Boots (outer), chemical-resistant, steel toe and shank
- o Boot covers (outer), chemical-resistant (disposable)
- o Hard hat (face shield)
- o 2-way radio communications (intrinsically safe)

#### 9.4.4 Level C Personnel Protective Equipment:

- o Air-purifying respirator, full-face, cartridge-equipped (MSHA/NIOSH approved)
- o Chemical-resistant clothing (coveralls; hooded, one-piece or two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls)
- o Coveralls
- o Long cotton underwear
- o Gloves (outer), chemical-resistant
- o Gloves (inner), chemical-resistant
- o Boots (outer), chemical-resistant, steel toe and shank
- o Boot covers (outer), chemical-resistant (disposable)
- o Hard hat (face shield)
- o 2-way radio communications (intrinsically safe)

#### 9.4.5 Level D Personnel Protective Equipment:

- o Coveralls/long sleeves
- o Gloves
- o Boots/shoes, leather or chemical-resistant, steel toed

- o Safety glasses
- o Hard hat

#### 9.4.6 Reassessment of Protection Program

The Level of Protection provided by PPE selection shall be upgraded or downgraded based upon a change in site conditions or findings of investigations. Changes in the level of protection shall be approved only by the SAT HSO and/or the Site HSO.

When a significant change in site conditions occurs, the hazards should be reassessed. Some indicators of the need for reassessment are:

- o Commencement of a new work phase, such as the start of drum sampling or work that begins on a different portion of the site.
- o Change in job tasks during a work phase.
- o Significant change in weather.
- o When temperature extremes or individual medical considerations limit the effectiveness of PPE.
- o Contaminants other than those previously identified are encountered.
- o Change in ambient levels of contaminants.
- o Change in work scope which effects the degree of contact with contaminants.

#### 9.4.7 Respiratory Protection

- o All employees whose jobs may require the use of respiratory protection will be certified medically fit to use a respirator before being fit tested and issued a respirator.
- o All employees whose jobs may require the use of respiratory protection will be certified annually as medically fit to use a respirator.
- o Only employees who have successfully completed respiratory protection training shall be allowed to use respiratory protection. Respiratory protection training includes how to wear and maintain respirators properly, the proper use and limitations of respirators, and familiarization with respirators to be used at the job.
- o Employees will be fit tested using OSHA-approved fit testing protocols before being issued any respirator and annually thereafter. Subcontractors shall provide certificate of respirator fit test completed within the last 12 months for each employee required to use respiratory protection on site.
- o If an employee has difficulty in breathing during the fit test or during use, he shall be evaluated medically to determine if he can wear a respirator safely while performing assigned tasks.

- o No employee shall be assigned to tasks requiring the use of respirators if, based upon the most recent examination, a physician determines that the health or safety of the employee will be impaired by respirator use.
- o Contact lenses shall not be worn while using any type of respiratory protection.
- o Facial hair that might interfere with a good facepiece seal or proper operation of the respirator is prohibited.
- o An employee will be issued only those respirators for which he/she has been successfully fit tested.
- o Only properly cleaned, maintained, National Institute of Occupational Safety and Health (NIOSH)-approved respirators shall be used on site.
- o Selection of respirators, as well as any decisions regarding upgrading or downgrading of respiratory protection, will be made by the Site HSO and/or SAT HSO.
- o Air purifying respirators (APRs) will not be used in heavily contaminated atmospheres where the protection factor is likely to be exceeded. The nature and concentration range of the contamination must be known before an APR may be selected for use.
- o Used APR cartridges shall be replaced at the end of each shift or sooner if the user notices break-through or increased breathing resistance. PAPR cartridges will be changed when flow falls below 4 cfm through the cartridge.
- o Positive and negative pressure tests shall be performed each time the respirator is donned.
- o Air-supplied respirators shall be assembled according to manufacturer's specifications. Hose length, couplings, valves, regulators, manifolds and all accessories shall meet ANSI and the manufacturer's requirements.
- o Respirators shall be cleaned and sanitized before and after use.
- o Respirators shall be inspected during cleaning. Worn or deteriorated parts shall be replaced.
- o The SAT HSO shall review the respiratory protection program regularly to ensure employees are properly wearing and maintaining their respirators and that the respirator protection is adequately protecting the employees.

#### 9.4.8 Task Specific PPE Requirements

TASK	LEVEL OF PROTECTION	SPECIFIC MATERIALS
Sampling, Sample Preservation	D	Inner Glove - N/A Outer Glove - Nitrile Inner Boot - Steel toe shoes or steel toe overboots Outer Boot - Body Covering - Safety Glasses, long sleeves as necessary Respirator/Cartridge - N/A PFD as necessary

#### 9.5 Communications

Successful communications between field teams and contact with personnel in the support zone are essential, as is communication with off-site agencies such as police and fire. The following communications systems will be available during activities at the Site (check all systems that apply):

☒ Intrinsically Safe Radio  
☐ Compressed Air Horn  
☐ Public Telephone (location )(number - )  
☐ Site Telephone (location )(number - )  
☒ Portable Telephone (location PM )( 732-406-8640)

All on-site personnel shall be familiar with the meanings of the following hand signals:

Hand Signal	Definition
-----	-----
Hands clutching throat	Out of air/cannot breathe
Hands on top of head	Needs assistance
Thumbs up	OK/I am all right/I understand
Thumbs down	No/negative
Arms waving upright	Send backup support
Grip partners wrist	Exit area immediately

#### 9.6 Identification of Nearest Medical Assistance

As part of the site control program, the Site PM must post the identification and location of the nearest medical facilities where response personnel can receive assistance in the event of an emergency. Medical facilities typically include area hospitals, emergency clinics, on-call physicians, medical specialists, or emergency, ambulance, fire, and police services. Information on the nearest medical facility for this site can be found in Section 14.7.

If there is no medical facility in close proximity to the site, at least one individual on site must be trained to render first aid in the event of an emergency. The following individual(s) on site are certified to perform first aid:

<u>NAME</u>	<u>FIRST AID/CPR EXPIRATION DATE</u>
Dan Gaughan	December 12, 2008 / December 12, 2008
Jeff Lynes	November 4, 2008/ November 4, 2008
Julissa Morales	December 12, 2008 / December 12, 2008
Scott Snyder	November 2, 2008/ November 2, 2008

## **SECTION X - MONITORING PROCEDURES**

### **10.0 Air Monitoring and Action Levels**

According to 29 CFR 1910.120(h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection needed on site.

### **10.1 Routine Air Monitoring Requirement**

The following are the routine air monitoring requirements:

- o Upon initial entry, representative air monitoring shall be conducted to identify IDLH conditions, exposure above **OSHA-PELs**, or other published exposure levels including exposure to radiation, flammable atmospheres, and/or oxygen deficient atmospheres;
- o When the possibility of an IDLH condition or flammable atmosphere has developed;
- o When work begins on a different portion of the site;
- o Contaminants other than those previously identified are being handled;
- o A different type of operation is initiated;
- o Employees are handling leaking drums or containers or working in areas with obvious liquid contamination;
- o Continuously during confined space work; and
- o At the end of daily site operations.

Air monitoring will consist at a minimum of the criteria listed below. All air monitoring data will be documented and will be available in the **WESTON** site file for review. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturers' specifications.

## 10.2 Site-Specific Air Monitoring Requirements

Instrument	Compounds to Detect	Frequency	Comments/ Action Level
Personal Data RAM (PDR)	Metals/particulates	Initial Entry; constantly during Level D operations; periodically during Level C operations	>0.156 mg particulate concentration sustained in breathing zone as measured by the PDR-1000- suspend operations and consult HSO/PM

DUST EXPOSURE CALCULATION WORKSHEET					
Safety Factor for this site = 2					
Dust Level					
Chemical	Exposure Limit (mg/m3)	Maximum Soil Concentration (mg/kg)	Exposure Limit Based on Single Compound (EL Mix, mg/m3)	Dust Quotient for Each Compound (level/limit)	Problem from Single Compound [5mg/m3)/ELmix]
Antimony	0.5	12,900	19.38	2.58E+04	0.258
Arsenic	0.01	3,350	1.49	3.35E+05	3.350
Copper	I	3,590	139.28	3.59E+03	0.036
Lead	0.05	146,000	.18	2.84E+06	28.400
			Sum	3.20E+06	
Dust Exposure Level at Mixture PEL =			0.156		32.044



## **SECTION XI - SAFETY CONSIDERATIONS**

### **11.0 Introduction**

The following is a brief description of various safety conditions that workers can expect to encounter in the field. It is not comprehensive. Refer to Section 7.1 for a task-specific hazard analysis for the RBS site and refer to the attached Weston field ops in Appendix F for complete procedures.

### **11.0 Lighting**

Work areas must have adequate lighting for employees to see to work and identify hazards (5 footcandles minimum - comparable to a single 75 or 100 watt bulb). Personnel should carry flashlights in all normally dark areas for use in the event of a power failure. Applicable OSHA standards for lighting, 29 CFR 1910.120(m) shall apply.

### **11.1 Electrical Power**

All electrical power must have a ground fault circuit interrupter as part of the circuit. All equipment must be suitable and approved for the class of hazard. Applicable OSHA standards for electrical, 29 CFR 1926 Subpart K, shall apply.

### **11.2 Eye Wash Protection**

All operations involving the potential for eye injury, splash, etc., must have approved eye wash units locally available as per 29 CFR 1910.151(c).

### **11.3 Fire Protection/Fire Prevention**

Operations involving the potential for fire hazards shall be conducted in a manner as to minimize the risk. Non-sparking tools and fire extinguishers shall be used or available as appropriate. Sources of ignition shall be removed. When necessary, explosion-proof instruments and/or bonding and grounding will be used to prevent fire or explosion.

### **11.4 Utilities**

Overhead and underground utility hazards shall be identified and/or inspected prior to conducting operations involving potential contact.

### **11.5 Slips, Trips, and Falls**

Caution will be used to reduce general physical hazards. Where there is a fall potential, it will be guarded or posted to prevent employee use.

## 11.6 Heat Stress

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. Heat stress disorders include: heat rash, heat cramps, heat exhaustion, and heat stroke.

Heat stress can be prevented by assuring an adequate work/rest schedule. It is recommended that workers break a minimum 10 to 15 minutes for every 2 hours when temperature exceeds 72.5 degrees F and protective clothing is worn. More frequent breaks are necessary as the temperatures and level of protection are increased.

A work/rest schedule can be calculated based on heat stress monitoring results. Monitoring consists of taking the radial pulse of a worker for 30 seconds immediately after exiting the work area.

If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, increase the following rest period by one-third. The initial rest period should be at least 5 minutes.

## 11.7 Cold Stress

The RBS sampling event will be conducted in the beginning of September; therefore cold stress is not an anticipated risk. However due to the close proximity of work being conducted near water, if clothing becomes wet, changing clothes can help prevent hypothermia.

## 11.8 Noise

Hearing protection is required for workers working around noise sources where the noise level is greater than 85 dBA (time weighted average).

## **SECTION XII - STANDARD SAFE WORK PRACTICES**

### **12.0 General**

The following items are requirements to protect the health and safety of workers and will be discussed in the safety briefing prior to initiating work on the site:

- o Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and ingestion of contamination is prohibited in the exclusion zone and contamination reduction zone.
- o Hands and face must be washed upon leaving the exclusion zone and before eating, drinking, chewing gum, tobacco, smoking, or other activities which may result in ingestion of contamination.
- o A buddy system will be used. Hand signals will be established to maintain communication. Due to the size of the Site, hand-held radios will be used for communication.
- o During site operations, each worker will consider himself as a safety backup to his partner. Off-site personnel provide emergency assistance. All personnel will be aware of dangerous situations that may develop.
- o Visual contact will be maintained between buddies on site when performing hazardous duties.
- o No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- o All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy will be immediately dismissed from the site.
- o Proper decontamination procedures must be followed before leaving the site.

## SECTION XIII - DECONTAMINATION PROCEDURES

### 13.0 Decontamination Plan

Any site where hazardous waste cleanup operations occur must have a plan that outlines decontamination procedures. These procedures must be made available to employees and must be implemented before anyone enters areas on-site where there is suspected contamination. The plan must ensure that chosen decontamination methods are effective for the specific hazardous substances present, and that the methods themselves do not pose any health or safety hazards.

The Site HSO will be responsible for monitoring the decontamination procedures. Monitoring will include reviewing the decontamination procedures to ensure that they are adequate for removal of the site contaminants, and ensuring that proper decontamination procedures are being followed.

### 13.1 Personnel Decontamination

All personnel leaving the contaminated area of a site (the Exclusion Zone) must be decontaminated to remove any harmful chemicals or infectious organisms that may have adhered to them. The procedures given are for the maximum and minimum amount of decontamination used for each level of protection.

The maximum decontamination procedures for all levels of protection consist of specific activities at 19 stations. Each station emphasizes an important aspect of decontamination. Decontamination lines are site-specific and vary depending on the types of contamination and work activities conducted on-site.

### 13.2 Equipment Decontamination

Sampling equipment will be decontaminated in accordance with procedures as defined in the sampling plan. The sequence of decontamination steps required for non-sampling equipment can be found in the Sampling Plan.

### 13.3 Disposition of Decontamination Wastes

Investigation-derived wastes generated during the site inspection will be disposed of in accordance with OERR Directive 9345.3-02, Management of Investigation-Derived Wastes During Site Inspections (May 1991), or most recent directive regarding disposal of such wastes.

## SECTION XIV - EMERGENCY PLAN

### 14.0 Emergency Response/Contingency Plan

This section describes contingencies and emergency planning procedures to be implemented at the site. This plan is compatible with local, state and federal disaster and emergency management plans as appropriate.

### 14.1 Pre-Emergency Planning

During the site briefings held prior to field work, all employees will be trained in and reminded of provisions of the emergency response plan, communication systems, and evacuation routes. Section 7.1 identifies the hazardous conditions associated with specific site activities. The plan will be reviewed by the SAT HSO and revised if necessary. This will ensure that the plan is adequate and consistent with prevailing site conditions.

### 14.2 Personnel Roles and Lines of Authority

The WESTON PM has primary responsibility for responding to and correcting emergency situations if safely possible. This includes taking appropriate measure to ensure the safety of site personnel and the public. Possible actions may involve evacuation of personnel from the site area. He/she is additionally responsible for ensuring that appropriate authorities are notified and follow-up reports completed. The HSO may be called upon to act on the behalf of the WESTON PM, and will direct responses to any medical emergency.

### 14.3 Site Security

During any emergency situation it is important that site security and control are maintained. The WESTON PM will be responsible for ensuring that no individuals are allowed to enter the site or be put in any danger due to the nature of the emergency situation on the site.

### 14.4 Emergency Recognition/Prevention

Personnel will be familiar with techniques of hazard recognition from pre-assignment training and site-specific briefings. The HSO is responsible for ensuring that prevention devices or equipment are available to personnel. The following presents a list of potential hazards and prevention/control measures:

<u>HAZARD</u>	<u>PREVENTION/CONTROL</u>	<u>LOCATION</u>
Fire/Explosion	Fire Extinguisher Alarm System Fire Inspections	Mobile Command Post (Box Truck)
Spill	Berms/Dikes Sorbent Materials	To Be Determined

	Foams	
Air Release	Water Spray	To Be Determined
	Foam	
	Alarm System	
	Evacuation Routes	

The locations of the equipment will be discussed during the site specific briefing and periodically during the project.

#### 14.5 Evacuation Routes/Procedures

In the event of an emergency which necessitates an evacuation of the site, the following alarm procedures will be implemented:

Evacuation alarm notification should be made using three short blasts on the air horn, supplemented by the use of hand-held radios. All personnel should evacuate to a location upwind of any activities. Ensure that a predetermined location is identified off site in case of an emergency, so that all personnel can be accounted for. The predetermined location will be identified during the daily safety meeting.

Personnel will be expected to proceed to the closest exit with your buddy, and mobilize to the safe distance area associated with the evacuation route. Personnel will remain at that area until the re-entry alarm is sounded or an authorized individual provides further instructions.

#### 14.6 Safe Distances and Places of Refuge

No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies which could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident-specific criteria. However, the following measures are established to serve as general guidelines.

In the event of minor hazardous materials releases (small spills of low toxicity), WESTON team members in the affected area will report initially to the contamination reduction zone. Small spills or leaks (generally less than 55 gallons) will require initial evacuation of at least 50 feet in all directions to allow for cleanup and to prevent exposure. After initial assessment of the extent of the release and potential hazards, the WESTON PM or his/her designee will determine the specific boundaries for evacuation. Appropriate steps such as caution tape, rope, traffic cones, barricades, or personal monitors will be used to delineate and secure the boundaries.

In the event of a major hazardous material release (large spills of high toxicity/greater than 55 gallons), field team members will be evacuated from the building/site. The team will assemble at the entrance to the site for a head count by the WESTON PM and to await further instruction.

If an incident may threaten the health or safety of the surrounding community, the WESTON PM, or his/her designee will inform the proper agencies so that the public can be informed. Places of refuge will be established prior to the commencement of activities. These areas must be identified for the following incident:

- o Chemical release
- o Fire/explosion
- o Power loss
- o Medical emergency
- o Hazardous weather

In general, evacuation will be made to the mobile command post, unless the emergency coordinator determines otherwise. It is the responsibility of the emergency coordinator to determine when it is necessary to evacuate personnel to off-site locations.

In the event of an emergency evacuation, all the employees will gather at the entrance to the site until a head count establishes that all are present and accounted for. No one is to leave the site without notifying the emergency coordinator.

#### 14.7 Emergency Contact/Notification System

The following list provides names and telephone numbers for emergency contact personnel. In the event of a medical emergency, personnel will take direction from the HSO and notify the appropriate emergency organization. In the event of a fire or spill, the site supervisor will notify the appropriate local, state, and federal agencies. A Route To Hospital Map follows (Figure 2).

<u>Organization</u>	<u>Contact</u>	<u>Telephone</u>
Ambulance:	Laurence Harbor First Aid	732-566-1763 or 911
Police:	Old Bridge Police	732-721-5600 or 911
Fire:	Laurence Harbor Fire Company	732-970-6542 or 911

Hospital  
Bayshore Community Hospital  
727 North Beers Street  
Holmdel, New Jersey 07733

Directions to Hospital: Head south on Rt. 35 about 3.3 miles and make a right onto Beers St. The Hospital is approximately 1.5 miles down Beers Street.

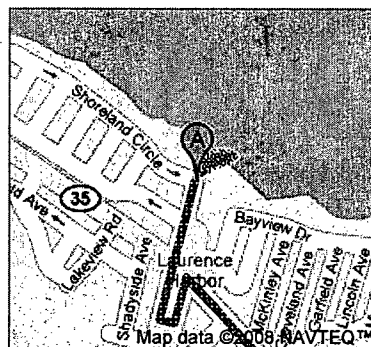




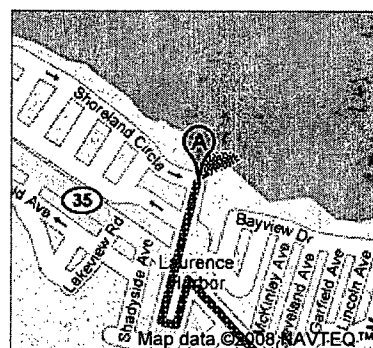
Directions to 727 N Beers St, Holmdel, NJ  
07733  
5.0 mi – about 13 mins

**Save trees. Go green!**

Download Google Maps on your  
phone at [google.com/gmm](http://google.com/gmm)

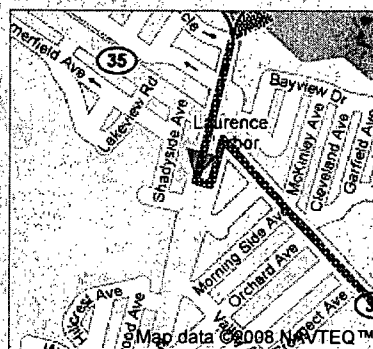


1. **Head south on Laurence Pkwy toward Shoreland Circle**  
About 2 mins



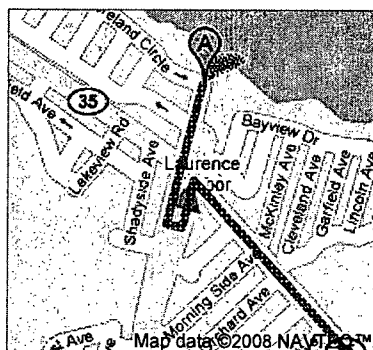
go 0.2 mi  
total 0.2 mi

2. **Make a U-turn**  
About 1 min



go 430 ft  
total 0.3 mi

- ➔ 3. **Turn right at RT-35**  
About 6 mins



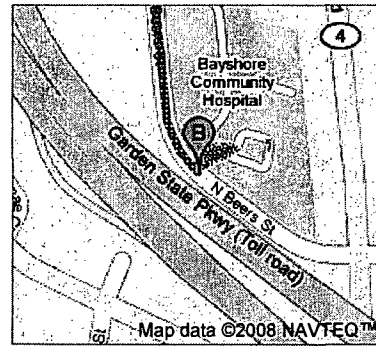
go 3.3 mi  
total 3.5 mi

- ➔ 4. **Turn right at Beers St**  
About 5 mins



go 1.5 mi  
total 5.0 mi

 **Bayshore Community Hospital**  
727 N Beers St, Holmdel, NJ 07733



These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2008 NAVTEQ™



Directions to 727 N Beers St, Holmdel, NJ  
07733  
5.0 mi – about 13 mins

**Save trees. Go green!**

Download Google Maps on your  
phone at [google.com/gmm](http://google.com/gmm)



**Laurence Pkwy**

**1. Head south on Laurence Pkwy toward Shoreland Circle**

About 2 mins

go 0.2 mi  
total 0.2 mi

**2. Make a U-turn**

About 1 min

go 430 ft  
total 0.3 mi

**→ 3. Turn right at RT-35**

About 6 mins

go 3.3 mi  
total 3.5 mi

**→ 4. Turn right at Beers St**

About 5 mins

go 1.5 mi  
total 5.0 mi



**Bayshore Community Hospital**

**727 N Beers St, Holmdel, NJ 07733**

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2008 NAVTEQ™

#### 14.8 Emergency Medical Treatment Procedures

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket). First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to the PM.

Any person being transported to a clinic or hospital for treatment should take with them information on the chemical(s) they have been exposed to at the site. This information is included in Table 3.1. Any vehicle used to transport contaminated personnel will be treated and cleaned as necessary.

#### 14.9 Fire or Explosion

In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival, the PM or designated alternate will advise the fire commander of the location, nature, and identification of the hazardous materials on site.

If it is safe to do so, site personnel may:

- o Use fire fighting equipment available on site to control or extinguish the fire; and,
- o Remove or isolate flammable or other hazardous materials which may contribute to the fire.

#### 14.10 Spill or Leak

In the event of a spill or a leak, site personnel will:

- o Inform their supervisor immediately;
- o Locate the source of the spillage and stop the flow if it can be done safely; and,
- o Begin containment and recovery of the spilled materials if safely possible.

#### 14.11 Emergency Equipment/Facilities

The following is a list of potentially available emergency equipment on site:

- o First aid kit
- o Fire extinguisher
- o Stretcher
- o Site telephone
- o Solvent material
- o Spill kits
- o Emergency SCBAs

- o Eye wash
- o Emergency shower
- o Two-way radio
- o Overpacks
- o Berm materials

#### 14.12 Site Topography, Layout and Weather Conditions

Prior to work beginning at a site it is important to note particulars about that site that might be important during an emergency situation. In particular, it is important to note specifics about the site topography, the layout of the site and any special weather conditions that are known or are expected to occur. This information should then be used to ensure that emergency response planning has taken into account site-specific requirements.

Site Topography - The site is situated in Laurence Harbor and Sayreville, New Jersey, which is part of the Raritan Bay. The site consists of sandy beach areas and tidal areas.

Layout - the site being investigated under this health and safety plan consists of metal contamination with no source(s) has been identified; therefore, there is no site layout description.

Weather Conditions - Weather conditions are expected to be typical of the New Jersey coastal area in September – sunny with temperatures averaging in the upper to mid 70's °F.

#### 14.13 Accident Report

For all occupational injuries, accident, and/or illness that occurs on site, an Employee Incident Report must be filled out and given to the WESTON HSO.

## SECTION XV - MEDICAL DATA SHEET/FIELD TEAM REVIEW

### 15.0 Field Team Data

Name	40-Hour Training	8-Hour Refresher *	Supervisor Training	First Aid/ CPR *	Fit Test *	Medical*
Kelli Lucarino	10/15/2001	5/16/2009	-	-	1/7/2009	4/16/2009
Dan Gaughan	4/6/2001	9/13/2008	5/1/2002	12/12/2008	1/7/2009	2/1/2009
Scott Snyder	9/10/1999	1/24/2009	12/22/99	11/2/2008	1/7/2009	8/28/2009
Jeff Lynes	1/10/2005	1/24/2009	-	11/4/2008	6/19/2009	7/29/2008
Julissa Morales	9/14/06	9/13/08	-	12/12/2008	9/2/2009	8/7/2009
Kristen Sharp	11/12/2004	11/13/2008		4/9/2009	9/7/2008	8/23/2008
Matt Foster	9/20/2007	NA		2/22/2009	11/13/2008	10/22/2008

\* Expires

**APPENDIX A**

**CHEMICAL DATA SHEETS**

# International Chemical Safety Cards

## ANTIMONY

ICSC: 0775



Antimony black  
Antimony regulus  
Stibium  
Sb

Atomic mass: 121.8

ICSC # 0775

CAS # 7440-36-0

RTECS # CC4025000

UN # 2871

October 12, 2006 Validated



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
<b>FIRE</b>	Combustible under specific conditions. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames. NO contact with oxidants, halogens, acid(s).	water spray, foam, powder, carbon dioxide
<b>EXPLOSION</b>	Finely dispersed particles form explosive mixtures in air. Risk of fire and explosion on contact with	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
<b>EXPOSURE</b>		<b>PREVENT DISPERSION OF DUST!</b>	
• <b>INHALATION</b>	Cough. (See Ingestion).	Local exhaust or breathing protection.	Fresh air, rest.
• <b>SKIN</b>		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
• <b>EYES</b>	Redness. Pain.	Safety goggles, or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• <b>INGESTION</b>	Abdominal pain. Vomiting. Diarrhoea.	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention if you feel unwell.
SPILLAGE DISPOSAL		STORAGE	PACKAGING & LABELLING
Personal protection: P2 filter respirator for harmful particles. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting.		Separated from oxidants acids, halogens food and feedstuffs.	Do not transport with food and feedstuffs. UN Hazard Class: 6.1 UN Packing Group: III



## SEE IMPORTANT INFORMATION ON BACK

ICSC: 0775

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

# International Chemical Safety Cards

ANTIMONY

ICSC: 0775

<p>I M P O R T A N T</p>	<p><b>PHYSICAL STATE; APPEARANCE:</b> SILVER-WHITE, LUSTROUS, HARD, BRITTLE LUMPS OR DARK GRAY POWDER</p> <p><b>PHYSICAL DANGERS:</b> Dust explosion possible if in powder or granular form, mixed with air.</p> <p><b>CHEMICAL DANGERS:</b> On combustion, forms toxic fumes (antimony oxides; see ICSC 0012). Reacts violently with oxidants, , causing fire and explosion hazard. On contact with acids may emit toxic gas (stibine; see ICSC 0776).</p> <p><b>OCCUPATIONAL EXPOSURE LIMITS:</b> TLV: 0.5 mg/m<sup>3</sup> as TWA (ACGIH 2006). <b>MAK:</b> Carcinogen category: 2 Germ cell mutagen group: 3B (DFG 2006). <b>OSHA PEL*:</b> TWA 0.5 mg/m<sup>3</sup> *Note: The PEL also applies to other antimony compounds (as Sb). <b>NIOSH REL*:</b> TWA 0.5 mg/m<sup>3</sup> *Note: The REL also applies to other antimony compounds (as Sb). <b>NIOSH IDLH:</b> 50 mg/m<sup>3</sup> (as Sb) See: 7440360</p>	<p><b>ROUTES OF EXPOSURE:</b> The substance can be absorbed into the body by inhalation of its aerosol.</p> <p><b>INHALATION RISK:</b> A harmful concentration of airborne particles can be reached quickly when dispersed.</p> <p><b>EFFECTS OF SHORT-TERM EXPOSURE:</b> May cause mechanical irritation to the eyes.</p> <p><b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b> Repeated or prolonged contact with skin may cause dermatitis, especially when exposed to fumes. The substance may have effects on the lungs , resulting in pneumoconiosis.</p>
<p><b>PHYSICAL PROPERTIES</b></p>	<p>Boiling point: 1635 °C Melting point: 630 °C Density: 6.7 g/cm<sup>3</sup></p>	<p>Solubility in water: none</p>
<p><b>ENVIRONMENTAL DATA</b></p>		
<p><b>NOTES</b></p>		
<p>Other boiling points: 1325°C, 1440°C, 1587 °C, 1750°C. The recommendations on this card apply only to metallic antimony. See ICSC 0012 antimony trioxide, ICSC 1224 antimony trichloride, ICSC 0220 antimony pentafluoride and ICSC 0776 antimony trihydride.</p> <p>Transport Emergency Card: TEC (R)-61GT5-III</p>		
<p><b>ADDITIONAL INFORMATION</b></p>		

**ICSC: 0775****ANTIMONY**

(C) IPCS, CEC, 1994

**IMPORTANT  
LEGAL  
NOTICE:**

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# International Chemical Safety Cards

ARSENIC

ICSC: 0013



Grey arsenic  
As  
Atomic mass: 74.9

ICSC # 0013

CAS # 7440-38-2

RTECS # CG0525000

UN # 1558

EC # 033-001-00-X

October 18, 1999 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
<b>FIRE</b>	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames. NO contact with strong oxidizers. NO contact with hot surfaces.	Powder, water spray, foam, carbon dioxide.
<b>EXPLOSION</b>	Risk of fire and explosion is slight when exposed to hot surfaces or flames in the form of fine powder or dust.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
<b>EXPOSURE</b>		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT! AVOID EXPOSURE OF (PREGNANT) WOMEN!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Cough. Sore throat. Shortness of breath. Weakness. See Ingestion.	Closed system and ventilation.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Face shield or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Nausea. Vomiting. Burning sensation in the throat and chest. Shock or collapse. Unconsciousness.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.
<b>SPILLAGE DISPOSAL</b>	<b>STORAGE</b>		<b>PACKAGING &amp; LABELLING</b>

Evacuate danger area! Sweep spilled substance into sealable containers. Carefully collect remainder, then remove to safe place. Chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment.	Separated from strong oxidants, acids, halogens, food and feedstuffs. Well closed.	Do not transport with food and feedstuffs. Marine pollutant. T symbol N symbol R: 23/25-50/53 S: 1/2-20/21-28-45-60-61 UN Hazard Class: 6.1 UN Packing Group: II
<b>SEE IMPORTANT INFORMATION ON BACK</b>		
<b>ICSC: 0013</b> Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.		

# International Chemical Safety Cards

## ARSENIC

ICSC: 0013

I M P O R T A N T D A T A	<b>PHYSICAL STATE; APPEARANCE:</b> <b>ODOURLESS, BRITTLE, GREY, METALLIC-LOOKING CRYSTALS.</b>	<b>ROUTES OF EXPOSURE:</b> The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.
	<b>PHYSICAL DANGERS:</b>  <b>CHEMICAL DANGERS:</b> Upon heating, toxic fumes are formed. Reacts violently with strong oxidants and halogens, causing fire and explosion hazard. Reacts with acids to produce	<b>INHALATION RISK:</b> Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly, when dispersed.
	<b>OCCUPATIONAL EXPOSURE LIMITS:</b> TLV: 0.01 mg/m <sup>3</sup> as TWA A1 (confirmed human carcinogen); BEI issued (ACGIH 2004). <b>MAK:</b> Carcinogen category: 1; Germ cell mutagen group: 3A; (DFG 2004). OSHA PEL: 1910.1018 TWA 0.010 mg/m <sup>3</sup> NIOSH REL: Ca C 0.002 mg/m <sup>3</sup> 15-minute <u>See Appendix A</u> NIOSH IDLH: Ca 5 mg/m <sup>3</sup> (as As) <u>See: 7440382</u>	<b>EFFECTS OF SHORT-TERM EXPOSURE:</b> The substance is irritating to the eyes the skin and the respiratory tract. The substance may cause effects on the gastrointestinal tract cardiovascular system central nervous system kidneys, resulting in severe gastroenteritis, loss of fluid, and electrolytes, cardiac disorders shock convulsions and kidney impairment Exposure above the OEL may result in death. The effects may be delayed. Medical observation is indicated.
		<b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b> Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the mucous membranes, skin, peripheral nervous system liver bone marrow, resulting in pigmentation disorders, hyperkeratosis, perforation of nasal septum, neuropathy, liver impairment anaemia This substance is carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.
<b>PHYSICAL PROPERTIES</b>	Sublimation point: 613°C Density: 5.7 g/cm <sup>3</sup>	Solubility in water: none
<b>ENVIRONMENTAL</b>	The substance is toxic to aquatic organisms. It is strongly advised that this substance	



<b>DATA</b>	does not enter the environment.	
<b>NOTES</b>		
<p>The substance is combustible but no flash point is available in literature. Depending on the degree of exposure, periodic medical examination is suggested. <b>Do NOT</b> take working clothes home. Refer also to cards for specific arsenic compounds, e.g., Arsenic pentoxide (ICSC 0377), Arsenic trichloride (ICSC 0221), Arsenic trioxide (ICSC 0378), Arsine (ICSC 0222).</p> <p style="text-align: right;">Transport Emergency Card: TEC (R)-61GT5-II</p>		
<b>ADDITIONAL INFORMATION</b>		
<b>ICSC: 0013</b>		<b>ARSENIC</b>
(C) IPCS, CEC, 1994		
<b>IMPORTANT LEGAL NOTICE:</b>	<p>Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.</p>	

# International Chemical Safety Cards

**COPPER**
**ICSC: 0240**


Cu  
Atomic mass: 63.5  
(powder)

**ICSC # 0240**
**CAS # 7440-50-8**
**RTECS # GL5325000**
**September 24, 1993 Validated**

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Special powder, dry sand, NO other agents.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Cough. Headache. Shortness of breath. Sore throat.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.
SPILLAGE DISPOSAL		STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers. Carefully collect remainder. Then remove to safe place. (Extra personal protection: P2 filter respirator for harmful particles).		Separated from - See Chemical Dangers.	
SEE IMPORTANT INFORMATION ON BACK			
ICSC: 0240		Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.	

# International Chemical Safety Cards

**COPPER**

ICSC: 0240

I M P O R T A N T D A T A	<b>PHYSICAL STATE; APPEARANCE:</b> <b>RED POWDER, TURNS GREEN ON EXPOSURE TO MOIST AIR.</b>	<b>ROUTES OF EXPOSURE:</b> The substance can be absorbed into the body by inhalation and by ingestion.
	<b>PHYSICAL DANGERS:</b>	<b>INHALATION RISK:</b> Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.
	<b>CHEMICAL DANGERS:</b> Shock-sensitive compounds are formed with acetylenic compounds, ethylene oxides and azides. Reacts with strong oxidants like chlorates, bromates and iodates, causing explosion hazard.	<b>EFFECTS OF SHORT-TERM EXPOSURE:</b> Inhalation of fumes may cause metal fume fever. See Notes.
	<b>OCCUPATIONAL EXPOSURE LIMITS:</b> <b>TLV: (Fume) 0.2 mg/m<sup>3</sup> TLV: (Dusts &amp; mists as Cu) 1 mg/m<sup>3</sup> (ACGIH 2007).</b> <b>MAK: 0.1 mg/m<sup>3</sup> (Inhalable fraction)</b> Peak limitation category: II(2) Pregnancy risk group: C (DFG 2007).	<b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b> Repeated or prolonged contact may cause skin sensitization.
	<b>OSHA PEL*: TWA 1 mg/m<sup>3</sup> *Note: The PEL also applies to other copper compounds (as Cu) except copper fume.</b>	
	<b>NIOSH REL*: TWA 1 mg/m<sup>3</sup> *Note: The REL also applies to other copper compounds (as Cu) except Copper fume.</b>	
	<b>NIOSH IDLH: 100 mg/m<sup>3</sup> (as Cu) See: 7440508</b>	
<b>PHYSICAL PROPERTIES</b>	Boiling point: 2595°C Melting point: 1083°C Relative density (water = 1): 8.9	Solubility in water: none
<b>ENVIRONMENTAL DATA</b>		
<b>NOTES</b>		
The symptoms of metal fume fever do not become manifest until several hours. Card has been partially updated in January 2008: see Occupational Exposure Limits.		
<b>ADDITIONAL INFORMATION</b>		
ICSC: 0240		<b>COPPER</b>
(C) IPCS, CEC, 1994		
<b>IMPORTANT LEGAL NOTICE:</b>	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.	

# International Chemical Safety Cards

**LEAD**

ICSC: 0052



Lead metal

Plumbum

Pb

 Atomic mass: 207.2  
(powder)

ICSC # 0052

CAS # 7439-92-1

 RTECS # OF7525000

October 08, 2002 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	PREVENT DISPERSION OF DUST! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give plenty of water to drink. Refer for medical attention.
SPILLAGE DISPOSAL		STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the		Separated from food and feedstuffs incompatible materials See Chemical Dangers.	R: S:



environment. Personal protection: P3  
filter respirator for toxic particles.

### SEE IMPORTANT INFORMATION ON BACK

ICSC: 0052

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# International Chemical Safety Cards

**LEAD**

ICSC: 0052

<p>I M P O R T A N T D A T A</p>	<p><b>PHYSICAL STATE; APPEARANCE:</b> BLUISH-WHITE OR SILVERY-GREY SOLID IN VARIOUS FORMS. TURNS TARNISHED ON EXPOSURE TO AIR.</p> <p><b>PHYSICAL DANGERS:</b> Dust explosion possible if in powder or granular form, mixed with air.</p> <p><b>CHEMICAL DANGERS:</b> On heating, toxic fumes are formed. Reacts with oxidants. Reacts with hot concentrated nitric acid, boiling concentrated hydrochloric acid and sulfuric acid. Attacked by pure water and by weak organic acids in the presence of oxygen.</p> <p><b>OCCUPATIONAL EXPOSURE LIMITS:</b> TLV: 0.05 mg/m<sup>3</sup> A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued (ACGIH 2004). <b>MAK:</b> Carcinogen category: 3B; Germ cell mutagen group: 3A; (DFG 2004). EU OEL: as TWA 0.15 mg/m<sup>3</sup> (EU 2002). OSHA PEL*: 1910.1025 TWA 0.050 mg/m<sup>3</sup> See Appendix C *Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C. NIOSH REL*: TWA 0.050 mg/m<sup>3</sup> See Appendix C *Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C. NIOSH IDLH: 100 mg/m<sup>3</sup> (as Pb) See: 7439921</p>	<p><b>ROUTES OF EXPOSURE:</b> The substance can be absorbed into the body by inhalation and by ingestion.</p> <p><b>INHALATION RISK:</b> A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.</p> <p><b>EFFECTS OF SHORT-TERM EXPOSURE:</b></p> <p><b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b> The substance may have effects on the blood bone marrow central nervous system peripheral nervous system kidneys, resulting in anaemia, encephalopathy (e.g., convulsions), peripheral nerve disease, abdominal cramps and kidney impairment. Causes toxicity to human reproduction or development.</p>
<p><b>PHYSICAL PROPERTIES</b></p>	<p>Boiling point: 1740°C Melting point: 327.5°C Density: 11.34 g/cm<sup>3</sup> Solubility in water: none</p>	
<p><b>ENVIRONMENTAL DATA</b></p>	<p>Bioaccumulation of this chemical may occur in plants and in mammals. It is strongly advised that this substance does not enter the environment.</p>	



**NOTES**

Depending on the degree of exposure, periodic medical examination is suggested. Do **NOT** take working clothes home.  
 Transport Emergency Card: TEC (R)-51S1872

**ADDITIONAL INFORMATION**

**ICSC: 0052**

(C) IPCS, CEC, 1994

**LEAD**

**IMPORTANT  
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## **APPENDIX B**

### **CHEMICAL DATA SHEETS (SAMPLE PRESERVATION AND DECONTAMINATION)**

# International Chemical Safety Cards

## NITRIC ACID

ICSC: 0183

<p align="center"><b>NITRIC ACID</b>          Concentrated Nitric Acid (70%)  <math>\text{HNO}_3</math>          Molecular mass: 63.0</p> <p>CAS # 7697-37-2          RTECS # QU5775000          ICSC # 0183          UN # 2031          EC # 007-004-00-1</p>			
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TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
<b>FIRE</b>	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire.	NO contact with flammable substances. NO contact with combustibles or organic chemicals.	In case of fire in the surroundings: NO FOAM.
<b>EXPLOSION</b>	Risk of fire and explosion on contact with many common organic compounds.		In case of fire: keep drums, etc., cool by spraying with water.
<b>EXPOSURE</b>		<b>AVOID ALL CONTACT!</b>	
• <b>INHALATION</b>	Burning sensation. Cough. Laboured breathing. Unconsciousness. Symptoms may be delayed (see Notes).	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration if indicated. Refer for medical attention.
• <b>SKIN</b>	Corrosive. Serious skin burns. Pain. Yellow discolouration.	Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
• <b>EYES</b>	Corrosive. Redness. Pain. Severe deep burns.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• <b>INGESTION</b>	Corrosive. Abdominal pain. Burning sensation. Shock.	Do not eat, drink, or smoke during work. Wash hands before eating.	Do NOT induce vomiting. Give plenty of water to drink. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Ventilation. Collect leaking liquid in scalable containers. Cautiously neutralize remainder with sodium carbonate. Then wash away with plenty of water. Do NOT absorb in saw-dust or other combustible absorbents (extra personal protection: complete protective clothing including	Separated from combustible and reducing substances, bases, food and feedstuffs, organic chemicals. Cool. Dry. Keep in a well-ventilated room.	Unbreakable packaging; put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs. O symbol C symbol R: 8-35 S: (1/2-)23-26-36-45 Note: B

self-contained breathing apparatus).

UN Hazard Class: 8

## SEE IMPORTANT INFORMATION ON BACK

ICSC: 0183

Prepared in the context of cooperation between the International Programme on Chemical Safety &amp; the Commission of the European Communities © IPCS CEC 1993

## International Chemical Safety Cards

## NITRIC ACID

ICSC: 0183

I M P O R T A N T  D A T A	<b>PHYSICAL STATE; APPEARANCE:</b> <b>COLOURLESS TO YELLOW LIQUID ,</b> <b>WITH PUNGENT ODOUR.</b>	<b>ROUTES OF EXPOSURE:</b> The substance can be absorbed into the body by inhalation of its vapour and by ingestion.
	<b>CHEMICAL DANGERS:</b> The substance decomposes on warming producing nitrogen oxides. The substance is a strong oxidant and reacts violently with combustible and reducing materials, e.g., turpentine, charcoal, alcohol. The substance is a strong acid, it reacts violently with bases and is corrosive to metals. Reacts very violently with organic chemicals (e.g., acetone, acetic acid, acetic anhydride), causing fire and explosion hazard. Attacks some plastics.	<b>INHALATION RISK:</b> A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.
	<b>OCCUPATIONAL EXPOSURE LIMITS (OELs):</b> TLV: 2 ppm; 5.2 mg/m <sup>3</sup> (as STEL: 4 ppm; 10 mg/m <sup>3</sup> ) (ACGIH 1993-1994).	<b>EFFECTS OF SHORT-TERM EXPOSURE:</b> The substance is very corrosive to the eyes, the skin and the respiratory tract. Corrosive on ingestion as well. Inhalation of vapour may cause lung oedema (see Notes).
		<b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b>
<b>PHYSICAL PROPERTIES</b>	Boiling point: 121°C Melting point: -41.6°C Relative density (water = 1): 1.4 Solubility in water: miscible	Vapour pressure, kPa at 20°C: 6.4 Relative vapour density (air = 1): 2.2 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.07
<b>ENVIRONMENTAL DATA</b>		
<b>NOTES</b>		
Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Rinse contaminated clothes (fire hazard) with plenty of water.		
Transport Emergency Card: TEC (R)-9B NFPA Code: H 3; F 0; R 0;		
<b>ADDITIONAL INFORMATION</b>		

**ICSC: 0183****NITRIC ACID**

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NOTICE:**

Neither the CEC or the IPCS nor any person acting on behalf of the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use.

## **APPENDIX C**

### **INCIDENT REPORT / SAFETY SOLUTIONS FORMS**

# NOTIFICATION OF INCIDENT—INITIAL REPORT

The NOI form should be utilized to report ALL incidents. Incidents include: employee accidents, injuries, auto accidents, property damage/loss, information /data breaches, security concerns, subcontractor injuries/accidents/events, OR *other liability situations or circumstances that could give rise to a claim*. The NOI form is intended to be a preliminary summary (due within 24 hours/one business day) reporting what is immediately known of an event or situation. After a NOI report is released, and the appropriate resources within the organization are notified, an investigation should be initiated.

For **SECURITY INCIDENTS**, Initial notice and distribution via email limited to William Irwin, Corporate Security Manager, and Susan Hipp-Ludwick, Corporate Risk Manager. If incident is related to information /computer data concerns also include Joe Paquet, IS Technical Director in initial distribution.

## **SECTION 1: SECURITY INCIDENT SUMMARY (PROCEED TO ITEM #1 BELOW)**

☐ THEFT    ☐ VANDALISM    ☐ THREAT / ASSAULT    ☐ COMPUTERS    ☐ OTHER

For **SAFETY-RELATED INCIDENTS/ACCIDENTS** involving an employee(s) or subcontractor. Submit written report via email to Susan Hipp-Ludwick and Matthew Dillon in Risk Management, and ... Owen Douglass of Corporate EH&S, the Direct Supervisor of the involved employee(s), the Safety Officer, the Client Service Manager (CSM), and the Division EH&S Manager. Distribution of safety related incidents should also include: Pat McCann, President; Alan Solow, COO; Ray Griffin, Senior VP of HR; the appropriate Division Manager(s), and involved employee if such person is not the person completing the NOI. Others may be added to the distribution as designated by a division, business team, profit center or project management.

**OTHER INCIDENTS**, including environmental and/or incidents that may give rise to a claim are to be reported in writing, and sent by email to Susan Hipp-Ludwick and Matt Dillon in the Risk Management, and appropriate project team members, profit center, and division/business line management within 24 hours. Include Owen Douglass in distribution of environmental incidents.

## **SECTION I: INCIDENT SUMMARY**

☐ INJURY / ILLNESS    ☐ AUTO    ☐ SUBCONTRACTOR    ☐ ENVIRONMENTAL    ☐ OTHER  
(e.g. property loss;  
or circumstance that could give  
rise to a claim)

1. DATE / TIME / LOCATION OF INCIDENT (Project, Office, or Other location. Include WO#):
2. EMPLOYEE(S) / INDIVIDUAL(S) INVOLVED or WITNESS TO INCIDENT / EVENT:  
  
JOB TITLE / ROLE: \_\_\_\_\_ DIV./ PROFIT CENTER / ORG. UNIT \_\_\_\_\_
3. DIRECT SUPERVISOR / AND OFFICE MANAGER OR PROJECT MANAGER (Whomever is Appropriate):
4. DIVISION / LOCAL SAFETY OFFICER ( if applicable):
5. DESCRIPTION OF INCIDENT / POTENTIAL LIABILITY EXPOSURE/EVENT AND RESULTING INJURY / DAMAGES:
6. WERE AUTHORITIES CONTACTED (police, government)? IF YES, IDENTIFY (i.e., agency name, case number, etc).



**SECTION II: INJURY/IES**

7. TREATING PHYSICIAN NAME, HOSPITAL, if Applicable:

8. CAN PERSONNEL RETURN TO WORK? RESTRICTIONS, IF KNOWN :

**SECTION III: IF VEHICLE OR EQUIPMENT INVOLVED**

9. EQUIPMENT / VEHICLE INFORMATION (Year / Make / Model): VIN:

OWNED ☐ RENTED ☐ ALLOWANCE ☐ PERSONALLY OWNED VEHICLE ☐

FOR ADDITIONAL INFORMATION, CONTACT (Name and Phone Number):

***This is preliminary information, subject to change, and may contain errors. Any errors in this report will be corrected as follow-up investigation is conducted.***

**Investigative reports and/or other documentation will often be necessary supplemental information supporting initial NOI report.**

Questions can be directed to Susan Hipp-Ludwick at 610.701.3046

**APPENDIX D**

**OSHA POSTER**



# Job Safety and Health

## It's the law!



Occupational Safety  
and Health Administration  
U.S. Department of Labor

### EMPLOYEES:

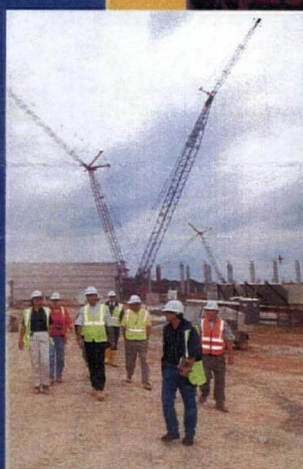
- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in that inspection.
- You can file a complaint with OSHA within 30 days of retaliation or discrimination by your employer for making safety and health complaints or for exercising your rights under the *OSH Act*.
- You have the right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violations.
- Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records and records of your exposures to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.
- You must comply with all occupational safety and health standards issued under the *OSH Act* that apply to your own actions and conduct on the job.

### EMPLOYERS:

- You must furnish your employees a place of employment free from recognized hazards.

You must comply with the occupational safety and health standards issued under the *OSH Act*.

**This free poster available from OSHA –  
The Best Resource for Safety and Health**



Free assistance in identifying and correcting hazards or complying with standards is available to employers, without citation or penalty, through OSHA-supported consultation programs in each state.

**1-800-321-OSHA**  
[www.osha.gov](http://www.osha.gov)

OSHA 3165-12-06R



**APPENDIX F**

**FIELD AUDIT FORM**

## HEALTH AND SAFETY FIELD AUDIT

Legend X = Yes, O = No

SITE NAME: \_\_\_\_\_

WO #: \_\_\_\_\_

LOCATION: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_

DATE: \_\_\_\_\_

### CERTIFICATION OF PERSONNEL:

1. \_\_\_\_\_ All WESTON personnel on site are currently active on certification list?
2. \_\_\_\_\_ Site Safety Officer and Site Supervisor are qualified?

### MEDICAL AND FIRST AID:

1. \_\_\_\_\_ First Aid Kits accessible and identified?
2. \_\_\_\_\_ Emergency eye/safety washes available?
3. \_\_\_\_\_ Daily First Aid logs up to date?
4. \_\_\_\_\_ First Aid Kits inspected weekly?
5. \_\_\_\_\_ At least two First Aid trained persons on site at all times when working?

### SITE SAFETY/EMERGENCY PLANS:

1. \_\_\_\_\_ Safety plan posted on site and given to each person?
2. \_\_\_\_\_ Initial site safety plan meeting held and documented before work begins?
3. \_\_\_\_\_ Hazardous materials information available for all hazards?
4. \_\_\_\_\_ Designated, qualified site health and safety coordinator on site?
5. \_\_\_\_\_ Employees trained in toxicology/exposure risks?
6. \_\_\_\_\_ Emergency telephone numbers posted?
7. \_\_\_\_\_ Emergency routes designated?
8. \_\_\_\_\_ Emergency plan and signal reviewed with all persons?

### TRAINING:

1. \_\_\_\_\_ Daily safety meetings documented?
2. \_\_\_\_\_ Question and answer time available to all site personnel?
3. \_\_\_\_\_ All employees instructed in hazardous materials handling practices?
4. \_\_\_\_\_ New personnel to site receive: copy of safety plan \_\_\_\_\_, site orientation \_\_\_\_\_, Review of LOP \_\_\_\_\_, DECON \_\_\_\_\_, ZONES \_\_\_\_\_, Site specific safety and health hazards? \_\_\_\_\_

## HEALTH AND SAFETY FIELD AUDIT - Continued

Legend X = Yes, O = No

### PERSONAL PROTECTION:

1. ☐ All equipment meets ANSI/OSHA/EPA criteria?
2. ☐ Levels of protection (LOP) established?
3. ☐ Site control zones (Exclusion, CRZ, Support) clearly designated?
4. ☐ All employees know their LOP scheme?
5. ☐ OSHA respirator program in place?
6. ☐ Employees fit tested for respirators?

☐ On site?  
☐ Fit tests current?

7. ☐ Defective equipment tagged out?
8. ☐ Breathing air grade "D" certified?
9. ☐ Sufficient quantities of equipment?
10. ☐ Safety instrumentation maintained and calibrated?  
☐ Maint. & Cal. logs up to date?

### DECONTAMINATION:

1. ☐ Decon system set up on site?  
☐ Used?  
☐ According to safety plan?
2. ☐ Contamination reduction corridor clearly delineated within the CRZ?
3. ☐ Appropriate waste recepticals available for all waste?
4. ☐ Recepticals properly closed at end of day?
5. ☐ All Decon liquids properly contained and disposed of?
6. ☐ All wastes disposed of according to approved plan?
7. ☐ All personnel received Decon training?
8. ☐ All reusable personal protective gear deconned and disinfected at least daily?

### FIRE PREVENTION/PROTECTION:

1. ☐ Hot work permits required?
2. ☐ Smoking restricted to designated area?
3. ☐ Fire lanes established, clearly designated & maintained?
4. ☐ Flammable/combustible liquid dispensing transfer systems grounded & bonded?
5. ☐ Proper flammable materials storage?
6. ☐ Fire alarm established, workers aware?
7. ☐ Location and use of fire extinguisher known by all personnel?
8. ☐ Fire extinguishers checked before each shift?  
☐ Inspected monthly?
9. ☐ Fire extinguisher appropriate for fire hazard potential?
10. ☐ Combustible materials segregated from ignition sources?

Revised 10/1999

## HEALTH AND SAFETY FIELD AUDIT - Continued

Legend X = Yes, O = No

### WALKING AND WORKING SURFACES:

1. \_\_\_\_ Accessways, stairs, ramps and ladders free of ice, mud, snow or debris?
2. \_\_\_\_ Ladders exceed max length?
3. \_\_\_\_ Ladders used in passageways, doors or driveways?
4. \_\_\_\_ Broken or damaged ladders tagged out?
5. \_\_\_\_ Metal ladders prohibited in electrical service?
6. \_\_\_\_ Safety feet on straight and extension ladders?
7. \_\_\_\_ Stairways, floor and wall openings guarded?
8. \_\_\_\_ Elevated work areas guardrailed or safety chained?
9. \_\_\_\_ Flotation devices worn when working on or over water?
10. \_\_\_\_ Toe boards on overhead work surfaces?
11. \_\_\_\_ Mobile offices/labs have fixed stairs and handrails?
12. \_\_\_\_ Work areas kept free of debris and equipment?

### EXCAVATIONS, CONFINED SPACES, TUNNELS:

1. \_\_\_\_ Excavations sloped, shored or benched to prevent cave-ins?
2. \_\_\_\_ Shoring approved by engineer?
3. \_\_\_\_ Guardrails or fences placed around excavations near walkways or roads?
4. \_\_\_\_ Excavation locations lighted/or otherwise made visible at night?
5. \_\_\_\_ Utility check performed and documented before excavation or drilling?
6. \_\_\_\_ Ladders available in trenches more than 4 feet deep and at a minimum, 25' intervals along a fence?
7. \_\_\_\_ All excavated material, personnel, heavy equipment is at least 24" from the edge of all trenches?
8. \_\_\_\_ Confined space entry permit procedure in place and communicated to all?
9. \_\_\_\_ Employee training includes CSE hazards?
10. \_\_\_\_ Tunnels are adequately ventilated?
11. \_\_\_\_ There is proper lighting?
12. \_\_\_\_ Tunnel tested for: % O<sub>2</sub>?  
\_\_\_\_ LEL, flammable gases, vapors?  
\_\_\_\_ TOX?
13. \_\_\_\_ Communication available inside to out?
14. \_\_\_\_ No flammables or combustibles in tunnel?
15. \_\_\_\_ CSE procedures used for Tunnels?
16. \_\_\_\_ CSE procedure checklist:
  - \_\_\_\_ Safety watch?
  - \_\_\_\_ Safety watch protected same as enterers?
  - \_\_\_\_ Safety line?
  - \_\_\_\_ Appropriate harness?
  - \_\_\_\_ Continuous monitoring for % O<sub>2</sub>, % LEL & TOX?

Revised 10/1999

## HEALTH AND SAFETY FIELD AUDIT - Continued

Legend X = Yes, O = No

### EXCAVATIONS, CONFINED SPACES, TUNNELS (continued):

- \_\_\_\_\_ Level B or constant ventilation and monitoring?
- \_\_\_\_\_ Instruments calibrated?
- \_\_\_\_\_ Maintain and inspect log for all equipment?

17. \_\_\_\_\_ Confined space isolated from electrical/mechanical activation by following lock out/tag out proceedings?
- \_\_\_\_\_ Confined space isolated from any raw materials/chemical lines by disconnecting or blanking these lines?

### MOTOR VEHICLES/HEAVY EQUIPMENT:

- 1. \_\_\_\_\_ Inspected before each use?
- 2. \_\_\_\_\_ Operators licensed for equipment used?
- 3. \_\_\_\_\_ Unsafe equipment tagged out and reported?
- 4. \_\_\_\_\_ All safety appliances/guards in place?
- 5. \_\_\_\_\_ Shut down for fueling?
- 6. \_\_\_\_\_ Equipped with back-up alarms or spotter used if 360° visibility restricted?
- 7. \_\_\_\_\_ Loads are secure before transport?
- 8. \_\_\_\_\_ Roads and structures inspected for load capacity per vehicle weights?
- 9. \_\_\_\_\_ Riders prohibited on heavy equipment?

### SLINGS AND CHAINS:

- 1. \_\_\_\_\_ Slings, chains and rigging rated for intended use and inspected per OSHA. Documentation of inspection in daily log?
- 2. \_\_\_\_\_ Damaged slings, chains or rigging tagged out and reported?
- 3. \_\_\_\_\_ Employees are instructed and keep clear of suspended loads?

### ELECTRICAL:

- 1. \_\_\_\_\_ Warning signs indicate the presence and location of high voltage equipment, 250 V or greater present and location?
- 2. \_\_\_\_\_ Electrical equipment and wiring properly guarded?
- 3. \_\_\_\_\_ Electrical lines, extension cords and cables guarded and properly maintained?
- 4. \_\_\_\_\_ Extension cords kept dry out of puddles and rain?
- 5. \_\_\_\_\_ Damaged equipment tagged out?
- 6. \_\_\_\_\_ Underground electrical lines located and indicated?
- 7. \_\_\_\_\_ Overhead electrical lines de-energized or elevated work platforms, work areas, booms or ladders erected so no contact can occur with electrical lines?
- 8. \_\_\_\_\_ A positive electrical lock-out system is used whenever work is done on or in electric equipment or electrically activated equipment?

Revised 10/1999



## HEALTH AND SAFETY FIELD AUDIT - Continued

Legend X = Yes, O = No

### HAND AND POWER TOOLS:

1. ☐ Guards and safety devices in place and used?
2. ☐ Inspected before each use?
3. ☐ Tagged out if defective?
4. ☐ Eye protection areas identified and protection worn?
5. ☐ Non sparking tools available?

### WELDING AND CUTTING:

1. ☐ Fire extinguishers present at all welding and cutting operations?
2. ☐ Confined spaces, tanks, pipelines tested before welding or cutting?
3. ☐ Hot work permitting system in use?
4. ☐ Proper helmets and shields (including proper tint for UV protection) used?
5. ☐ Properly grounded?
6. ☐ Fuel gas and O<sub>2</sub> gas cylinders stored at least 20' apart?  
☐ Stored upright and secured?
7. ☐ Only trained welders permitted?

### COMPRESSED GAS CYLINDERS/PRESSURIZED LINES:

1. ☐ Breathing air cylinders charged only to prescribed pressure?
2. ☐ No other gas system can be mistaken for breathing air?  
☐ Fittings prohibit cross connection?
3. ☐ Cylinders segregated appropriately in controlled, protected but well ventilated areas?
4. ☐ Smoking prohibited in storage areas?
5. ☐ Cylinders stored upright and secured?
6. ☐ Cylinder caps in place when stored (not in use) or when cylinders moved?
7. ☐ Fuel gas and O<sub>2</sub> minimum 20' apart when stored?
8. ☐ Pressurized air or waterlines are securely connected?
9. ☐ All site personnel know never to step across a pressurized line?
10. ☐ Gas or other hazardous lines are labelled appropriately?

### MISCELLANEOUS:

1. ☐ Tools and other equipment (portable) are stored away from walkways, roads or driveways where they cannot fall on or be fallen over by site personnel?
2. ☐ Overhead hazards are noted, communicated to all and labeled as needed?
3. ☐ Hard hat, eye hearing and protection areas are defined and signs in place?
4. ☐ Hard hats, eye and head protection used where appropriate?
5. ☐ Signs or labels are in place or appropriate training received?

Revised 10/1999

## HEALTH AND SAFETY FIELD AUDIT - Continued

Legend X = Yes, O = No

6. \_\_\_\_\_ Copies of contracts with client and sub-contractors are on-site, WESTON's role regarding site health and safety responsibilities clear in these and in the minds of the site manager(s)?
7. \_\_\_\_\_ Sub-contractors have received approved copies of their safety plan or have signified their intent to conform with Weston's safety plan?
8. \_\_\_\_\_ Site managers understand their responsibilities for sub-coniractors' conformance with all OSHA and other health and safety requirements?
9. \_\_\_\_\_ Site managers know what to do in the event of an OSHA inspection?

**COMMENTS:**

This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is no handwriting or other markings on the paper.

**APPENDIX F**

**WESTON FIELD OPS**

## **FLD 02 INCLEMENT WEATHER**

Hot weather (ambient temperatures over 70°F), cold weather (ambient temperatures below 40°F), rain, snow, ice, and lightning are examples of inclement weather that may be hazardous or add risk to work activities. Extremes of heat, cold, and humidity, as well as rain, snow, and ice, can adversely affect monitoring instrument response and reliability, respiratory protection performance, and chemical protective clothing materials.

### **RELATED FLDs AND OP**

*FLD 05 – Heat Stress Prevention and Monitoring*

*FLD 06 – Cold Stress*

*OP 05-03-008 – Inclement Weather & Business Disruption Policy*

### **PROCEDURE**

The potential for exacerbating the impact of physical hazards must be considered for tasks that expose personnel to inclement weather. Risk assessment and hazards analysis should be accomplished during the planning stages of a project for the most likely inclement weather conditions that may be encountered, i.e., rain and lightning in late spring, summer, and early fall, or lightning prone areas; cold, snow, and ice in winter. The Field Safety Officer (FSO) must determine the proper safety procedures and recommend them to the site manager. Each worker must evaluate the risk associated with his/her work and be actively alert to these hazards. Managers and workers must be familiar with the requirements of FLD 05 and FLD 06.

A pre-site activity risk assessment must be completed when inclement weather occurs. Weather conditions that affect instruments and personal protective equipment (PPE) function must be conveyed to site workers who should monitor function and integrity of PPE and be alert to changing weather conditions. A decision must be made on the proper safety procedures to use if work must continue, or to stop work if the risk is too great. The appropriate Safety Professional must be notified of all instances of the need to stop work for safety reasons, including inclement weather.

#### **Heat**

Hot, dry weather increases risk of soil drying, erosion, and dust dispersion, which may present or increase risk of exposure and environmental impact from toxic hazards. Hot weather will increase pressure on closed containers and the rate of volatilization, thereby potentially increasing the risk of exposure to toxic, flammable, or explosive atmospheres.

#### **Prevention and Protective Measures**

Employees must be protected from airborne contaminants using engineering controls such as wetting dry soil to prevent particle dispersion, and providing local ventilation to reduce volatile air contaminants to safe levels, or if engineering controls are infeasible, using prescribed PPE. Wind shifts and velocity should be measured where change may result in dispersion of airborne contaminants into the work area.

#### **Rain, Wet Weather, and High Humidity**

Wet conditions resulting from rain and wet weather increase slipping and tripping hazards, braking distances of vehicles, the potential for vehicle skidding, or difficulties in handling powered devices such as augers and drills. Rain fills holes, obscures trip and fall hazards, and increases risk of electrical shock

when working with electrical equipment. Changes in soil conditions caused by rain can impact trenching and excavating activities, creating the potential for quicksand formation, wall collapse, and cave-in. Vehicles become stuck in mud, and tools and personnel can slip on wet surfaces. Rain and wet conditions may decrease visibility (especially for personnel wearing respiratory protection) and limit the effectiveness of certain direct-reading instruments (e.g., photoionization detectors [PIDs]).

Feet that become wet and are allowed to remain wet can lead to serious problems under both heat and cold conditions. Activities that may result in wet feet include extended work in chemical protective clothing and wading in water/liquid during biological assessments. Trench foot, paddy foot, and immersion foot are terms associated with foot ailments resulting from feet being wet for long periods of time. All have similar symptoms and effects. Initial symptoms include edema (swelling), tingling, itching, and severe pain. These may be followed by more severe symptoms including blistering, death of skin tissue, and ulceration. (NOTE: The following Preventive and Protective Measures also apply to Cold, Snow, and Ice.)

#### Preventive and Protective Measures

Walkways, stairs, ladders, elevated workplaces, and scaffold platforms must be kept free of mud, ice, and snow. Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials.

Vehicles used in rain or cold weather must have working windshield wipers and defrosters, and windows must be kept clear of obstruction.

Drivers must observe traffic laws, including maintaining speed within limits safe for weather conditions, and wearing seat belts at all times. Note that this may mean operating below the posted speed limit.

When walking, workers should use a walking stick or probe to test footing ahead where there is standing water, snow, or ice to protect the walker against stepping into potholes or onto puncture hazards, buried containers, or other potential structurally unsound surfaces.

Prior to using vehicles or equipment in off-road work, workers should walk the work area or intended travelway when puddles or snow may obscure potholes, puncture hazards, or buried containers, or other potential structurally unsound surfaces.

Project managers should arrange to have winches, come-alongs, or other mechanical assistance available when vehicles are used in areas where there is increased risk of getting stuck. Cable or rope and mechanical equipment used for pulling stuck vehicles must be designed for the purpose, of sufficient capacity for the load, and be inspected regularly and before use to ensure safety. Manually pushing stuck vehicles is to be avoided.

Prevention methods are required when work is performed in wet conditions or when conditions result in sweating, causing the feet to become and remain wet. Proper hygiene is critical. Workers must dry their feet and change socks regularly to avoid conditions associated with wet feet. Use of foot talc or powder can additionally assist in prevention of this type of condition.

#### Cold, Snow, and Ice

Cold weather affects vehicle operation by increasing difficulty in starting and braking. Ice, frost, and snow can accumulate on windows and reduce vision. Cold, wet weather can cause icing of roadways,

driveways, parking areas, general work places, ladders, stairs, and platforms. Ice is not always as obvious to see as snow or rain, and requires special attention, especially when driving or walking.

Snow and ice increase the risk of accidents such as slipping when walking, climbing steps and ladders, or working at elevation, and the risk of accidents when driving vehicles or operating heavy equipment. Heavy snow and ice storms may cause electric lines to sag or break, and the use of electrical equipment in snow increases the risk of electric shock. Snow can hide potholes and mud, which can result in vehicles getting stuck or persons falling when stepping into hidden holes. Snow also may cover water, drums or other containers, sharp metal objects, debris, or other objects that can cause falls or punctures.

#### Preventive and Protective Measures

WESTON personnel are cautioned against operating motor vehicles such as cars or trucks on ice under any circumstances. If traveling in icy conditions, WESTON personnel should follow all public service advisories that curtail driving activities.

Personnel performing activities that require working over ice should be aware of minimal ice thickness safety guidelines as follows:

- 4-inch minimum: activities such as walking or skating.
- 6-inch minimum: activities such as snowmobiling or the use of equipment with the same weight and cross-sectional area as a snowmobile.

Personnel should always be aware that these measurement guidelines are under ideal conditions and that snow cover, conditions on rivers, ponds, or lakes with active currents, and other environmental factors impact the safety of working on ice. Clear ice typically is the strongest, while ice that appears cloudy or honeycombed (contains entrained air) is not as structurally strong. Measurements made by drilling or cutting through the ice should be made every few feet to verify safe conditions. Provisions for rescue (e.g., ladders or long poles and effective communications) must be available at the work site.

#### Lightning

Lightning represents a hazard of electrical shock that is increased when working in flat open spaces, elevated work places, or near tall structures or equipment such as stacks, radio towers, and drill rigs. Lightning has caused chemical storage tank fires and grass or forest fires. Static charges associated with nearby electrical storms can increase risk of fire or explosion when working around flammable materials, and can adversely affect monitoring instruments.

Lightning is the most dangerous and frequently encountered weather hazard people experience each year. Lightning affects all regions. Florida, Michigan, Pennsylvania, North Carolina, New York, Ohio, Texas, Tennessee, Georgia, and Colorado have the most lightning deaths and injuries.

#### Preventive and Protective Measures

Prior to working in areas or beginning projects when or where there is an increased potential for lightning striking personnel, steps must be taken to predict the occurrence of lightning strikes. Recommendations include:

- Check with client management to determine if there are any patterns or noted conditions that can help predict lightning or if there are structures that are prone to lightning strikes. Arrange for

client notification when there is increased potential for lightning activities. Ensure that clients include WESTON workers in lightning contingency plans.

- Monitor weather reports.
- Note weather changes and conditions that produce lightning.
- Stop work in open areas, around drill rigs or other structures that may attract lightning, on or in water and in elevated work places when lightning strikes are sighted or thunder is heard near a work site.
- Ensure all personnel are provided with safe areas of refuge. Prevent personnel from standing in open areas, under lone trees, or under drill rigs.
- Observe the "30-30" Rule. If you see lightning and thunder is heard within 30 seconds (approximately 6 miles), seek shelter. If you hear thunder, but did not see the lightning, you can assume that lightning is within 6 miles and you should seek shelter. Remain in the sheltered location for 30 minutes following the last lightning strike.
- Use a hand held static potential meter (lightning detection device) to monitor the potential difference between a cloud and the ground. When the measured potential is greater than 2 kV/m, there is a potential for a lightning strike – seek shelter.

## **High Wind and Tornado Safety**

### **High Winds**

Many construction workers have died due to wind-related accidents and injuries. A ladder that seems secure under normal circumstances can become unstable during windy conditions and cause you to fall. Scaffolding that is improperly secured can rip free during strong winds and kill bystanders. The risk of injury for construction workers increases during strong winds. Keep in mind that changing weather conditions can affect your daily work tasks, and make sure you have a game plan to prevent proper damage and personal injury.

**Stay Informed:** With today's modern technology available at the touch of a button, you should keep up to date with the latest local weather reports. Visit [weatherbug.com](http://weatherbug.com) or [weather.gov](http://weather.gov) to stay informed in case of wind warnings, watches, and advisories. Larger projects may have their own weather station on site to provide instant weather data. Use daily hazard assessments to determine if working conditions have changed or will change throughout the day.

**Be Prepared:** When you know the weather will be windy, secure loose building materials, scaffolding and fencing that could be picked up or torn loose by strong winds and thrown onto surrounding streets, structures, vehicles, or bystanders.

**Know the Limits of Your Equipment:** When operating any equipment, take time to read the operator's manual and become familiar with the wind specifications. Many crane manufacturers have high-wind guidelines to prevent you from operating a crane in unsafe weather. You should also check safety equipment such as fall protection to determine if it is adequate for windy conditions.

## Know the Terminology

### Severe Thunderstorm Watch

A Severe Thunderstorm Watch means that strong thunderstorms capable of producing winds of 58 mph or higher and/or hail 3/4 inches in diameter or larger are possible. If you are in the area of a Severe Thunderstorm Watch, you should be prepared to take shelter from thunderstorms. Severe Thunderstorm Watches are generally issued for 6-hour periods.

### Severe Thunderstorm Warning

A Severe Thunderstorm Warning means that thunderstorms capable of strong winds and/or large hail are occurring or could form at any time. If you are in the area of a severe thunderstorm, you should take shelter indoors immediately, avoid windows, and be prepared for high winds and hail. Severe Thunderstorm Warnings are generally in effect for an hour or less.

### High Wind Watch

A High Wind Watch is issued when sustained winds exceeding 40 mph and/or frequent gusts over 60 mph are likely to develop in the next 24 to 48 hours. For summit areas, high wind watches are issued when sustained winds are expected to exceed 45 mph and/or frequently gust over 60 mph. If you are in an area for which a High Wind Watch has been issued you should secure loose objects outdoors that may blow about and avoid outdoor activity that exposes you to high winds.

### High Wind Warning

A High Wind Warning is issued when sustained winds exceeding 40 mph and/or frequent gusts over 60 mph are occurring or imminent. For summit areas, warnings are issued for winds exceeding 45 mph and/or frequently gusting over 60 mph. Wind warnings may be issued up to 24 hours ahead of the onset of high winds and remain in effect for 6 to 12 hours. If you are in an area where a high wind warning is in effect you should avoid activities that expose you to high winds. Loose objects may be blown around. Tree limbs may break and fall. Power lines may be blown down.

### Wind Advisory

A Wind Advisory is issued when sustained winds of 30 to 39 mph and/or frequent gusts to 50 mph or greater are occurring or imminent. Wind advisories may be in effect for 6 to 12 hours. If you are in an area where a wind advisory is in effect you should secure loose objects that may be blown about outdoors and limit activity that may expose you to high winds.

Work Safely: If you will be working on a windy day, you should be alert and protected. Wear eye protection to prevent dust and other particles from entering or striking your eyes. Keep your hard hat on at all times to prevent injuries from falling or flying objects. The likelihood of falls from heights is greatly increased by strong winds. Wear the necessary PPE to ensure your safety.

### To avoid flying debris and to minimize damage during high winds:

- Shut down outdoor activities involving work at elevation on ladders, scaffolding, aerial lifts, etc.; handling large tarps and plastic sheeting when wind speeds exceed 25 mph; including work with radioactive materials and highly toxic materials that could be dispersed by the winds.
- At 13 - 18 mph wind will raise dust. Follow the dust action level.



- Move mobile items stored outside to indoor storage.
- Secure any items that cannot be moved inside.
- Be careful opening exterior doors.
- Be cautious about downed power lines, tree limbs, and debris on roads.
- Be alert for animals who have escaped from farms and zoos.

Stay Away from Power Lines: High winds can cause tree limbs to fall on power lines resulting in electrocution hazards or loss of power. Your best bet is to keep your distance.

## Tornados

### What is a TORNADO?

A tomado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm or as a result of severe weather associated with hurricanes. A funnel cloud is formed as cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado results from high wind velocity and wind blown debris.

### Tornado Safety

When a tornado approaches, you have only a brief amount of time to make life-or-death decisions. Advance planning and quick response are the keys to surviving a tomado.

Purchase a NOAA Weather Alert radio with an alert feature. When tuned to the proper frequency, these weather radios remain silent until a weather emergency occurs. Once they pick up the alarm tone, they will begin broadcasting emergency weather information so that citizens can protect themselves and their property. Some models of the NOAA weather radio incorporate the Specific Area Message Encoder technology, allowing users to target only those wamings that affect their immediate geographic area.

Conduct tornado drills. Designate an area to serve as your safe area, and practice having team members assemble there in response to a mock tomado waming.

Emergency Communications Plan. Develop an emergency communications plan in case team members are separated from one another when a tomado waming goes into effect. Designate an emergency coordinator. Instruct everyone to contact this coordinator in a weather emergency for instructions on what to do during the storm and where to reassemble after the emergency has passed. Design contingency plans to be consistent with client contingency plans. When possible use client waming and alerting systems and confirm that team members have access to shelters and know how to get to them.

### Know the Difference between a Tornado Watch and a Tornado Warning

Tomado Watch: Issued by the National Weather Service when tornadoes are possible in your area. You should remain alert for approaching storms. Remind family members of where the safe areas are within your home, and carefully monitor radiq or television reports for further developments.

Tomado Waming: Indicates that a tomado has been sighted in your area, or is indicated on weather radar. You should proceed to safe shelter immediately.

*When A Tornado Warning Goes In Effect, Put Your Safety Plans In Action.*

**In Your Automobile:** Motor vehicles are easily overturned by tornado winds. Leave your vehicle and seek shelter in a sturdy building. As a last resort, seek shelter in a ditch or culvert. Do not try to outrun or outmaneuver a tornado! Use the time to seek appropriate shelter outside your vehicle.

**Office Buildings, Hotels, and Shopping Centers:** Take shelter in an interior hallway on a lower floor. A closet, bathroom or other small room with short, stout walls will give some protection from collapse and flying debris. Otherwise, get under heavy furniture and stay away from windows. Many tornado deaths have occurred in large buildings due to the collapse of a roof or wide span wall. A corner area, away from a window, is safer than the middle of a wide span wall.

**Out In Open Country:** When severe weather approaches, seek inside shelter immediately. The chances of encountering falling trees, downed power lines and lightning are far greater than encountering a tornado itself. If a tornado approaches, lie flat in the nearest depression, such as a culvert or ditch, and cover your head with your arms.

**BE ALERT TO CHANGING WEATHER CONDITIONS  
HAVE AN EMERGENCY WEATHER PLAN IN PLACE  
REHEARSE YOUR CONTINGENCY PLANS PERIODICALLY  
KNOW WHERE TO GO WHEN A TORNADO THREATENS.**

## **FLD 05 HEAT STRESS PREVENTION AND MONITORING**

Heat stress may occur at any time work is performed at elevated temperatures. If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur such as fatigue, irritability, anxiety, and decreased concentration or dexterity, and possibly death. Because heat stress is one of the most common and potentially serious illnesses at field sites, regular monitoring and other preventive measures are vital to ensure worker safety. Wearing chemical protective clothing often decreases natural body heat loss (cooling) and increases the risk of heat stress.

Employees who are taking prescription or over-the-counter medications should consult with their personal physician prior to working in high-temperature environments to see if their medication would impair their ability to handle heat stress.

### **REFERENCES**

OSHA 29 CFR 1910 and 1926

### **RELATED FLDs**

*FLD 02 – Inclement Weather*

*FLD 03 – Hot Processes – Steam, Low Temperature Thermal Treatment Unit, and Transportable Incinerator*

*FLD 08 – Confined Space Entry Program*

*FLD 36 – Welding/Cutting/Burning*

*FLD 37 – Pressure Washers/Sandblasting*

### **PROCEDURE**

#### **Heat Stress Symptoms and Treatment**

##### Heat Rash

Heat rash, also known as prickly heat, may occur in hot and humid environments where sweat is not easily removed from the surface of the skin by evaporation and is aggravated by chafing clothes. When extensive or complicated by infection, heat rash can be so uncomfortable that it inhibits sleep and impairs a worker's performance.

Symptoms – Mild red rash, especially in areas of the body that come into contact with protective gear.

Treatment – Decrease amount of time spent working in protective gear and provide body powder to help absorb moisture and decrease chafing. Heat rash can be prevented by showering, resting in a cool place, and allowing the skin to dry.

##### Heat Cramps

Heat cramps are caused by inadequate electrolyte intake. The individual may be receiving adequate water; however, if not combined with an adequate supply of electrolytes, the blood can thin to the point where it seeps into the active muscle tissue, causing cramping.

Symptoms – Acute painful spasms of voluntary muscles, most notably the abdomen and extremities.

*Treatment* – Move the victim to a cool area and loosen clothing. Have the victim drink 1 to 2 cups of lightly salted water or diluted commercial electrolyte solution (e.g., Gatorade, Quench) immediately, and then every 20 minutes thereafter until symptoms subside. Electrolyte supplements can enhance recovery however, it is best to double the amount of water required by the dry mix package directions or add water to the liquid form.

#### Heat Exhaustion

Heat exhaustion is a state of weakness or exhaustion caused by the loss of fluids from the body. The condition is much less dangerous than heat stroke, but it nonetheless must be treated.

*Symptoms* – Pale, clammy, and moist skin, profuse perspiring, and extreme weakness. Body temperature is nonnal, pulse is weak and rapid, and breathing is shallow. The person may have a headache, may vomit, may feel dizzy, and may be irritable or confused.

*Treatment* – Move the victim to a cool, air-conditioned or temperature-controlled area, loosen clothing, place in a position with the head lower than the feet (shock prevention), and allow the victim to rest. Consult a physician. Have the victim drink 1 to 2 cups of water immediately, and every 20 minutes thereafter until symptoms subside. Seek medical attention at the advice of the consulting physician.

#### Heat Stroke

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of the body's heat regulating mechanisms (i.e., the individual's temperature control system [sweating] stops working correctly). Body temperature rises so high that brain damage and death may result if the person is not cooled quickly.

*Symptoms* – Red, hot, dry skin (although the person may have been sweating earlier); nausea, dizziness, confusion, extremely high body temperature, rapid respiratory and pulse rate, seizures or convulsions, unconsciousness or coma.

*Treatment* – Immediately call for emergency medical assistance. Remove the victim from the source of heat and cool the victim quickly. If the body temperature is not brought down quickly, permanent brain damage or death may result. Soak the victim in cool (not cold) water, sponge the body with cool water, or pour water on the body to reduce the temperature to a safe level (less than 102°F). Monitor the victim's vital signs. If possible, have the victim drink cool water. Do not give the victim coffee, tea, or alcoholic beverages.

#### Recognition and Risk Assessment

In the planning stages of a project, the potential for heat stress disorders must be considered as a physical hazard in the site-specific Health and Safety Plan (HASP). Risk assessment can be accomplished in the development stages of a project by listing in the HASP the most likely heat stress disorders that may occur. The Field Safety Officer (FSO) must make decisions on the proper safety procedures and recommend them to the site manager. Each worker must evaluate the risk associated with his or her work and be actively alert to these hazards. Any site worker may stop work if safety procedures are not followed or the risk is too great. In addition, all site personnel must be aware of these symptoms in both themselves and their co-workers.

## **Prevention and Protection Programs**

Heat stress is affected by several interacting factors including, but not limited to, age, obesity, physical condition, substance abuse, level of personal protective equipment (PPE) worn, and environmental conditions (temperature, shade, and humidity). Site workers must learn to recognize and treat the various forms of heat stress. The following recommendations should be followed to prevent heat stress:

- The most important measure to prevent heat-related illness is adequate fluid intake. Workers should drink 1/2 to 1 quarts of liquids per hour in high heat conditions. Most of this liquid should be water. Under heavy work and heat conditions, the body may lose up to 2 gallons of fluids per day. To prevent heat stress symptoms, the individual must ensure replacement of this fluid.
- Provide disposable cups that hold about 4 ounces, and water that is maintained at 50 to 60°F. Workers should drink 16 ounces of water before beginning work, and a cup or two at each break period.
- Provide a shaded area for rest breaks. Ensure that adequate shelter is available to protect personnel against heat and direct sunlight. When possible, shade the work area.
- Discourage the intake of caffeinated drinks during working hours.
- Monitor for signs of heat stress.
- Encourage workers to maintain a good diet during these periods. In most cases, a balanced diet and lightly salted foods should help maintain the body's electrolyte balance. Bananas are especially good for maintaining the body's potassium level.
- If utilizing commercial electrolyte mixes, double the amount of water called for in the package directions. Indications are that "full-strength" preparations taken under high heat stress conditions may actually decrease the body's electrolytes.
- Acclimate workers to site work conditions by slowly increasing workloads (i.e., do not begin work activities with extremely demanding tasks).
- Rotate shifts of workers who are required to wear impervious clothing in hot weather.
- Encourage workers to wear lightweight, light-colored, loose-fitting clothing.
- In extremely hot weather, conduct field activities in the early morning and evening.
- Provide cooling devices to aid natural body heat regulation. These devices, however, add weight and their use should be balanced against worker efficiency. An example of a cooling aid is long cotton underwear, which acts as a wick to absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.
- Good hygienic standards must be maintained by frequent showering and changes of clothing.
- Clothing should be permitted to dry during rest periods.
- Whenever working in the sun, provide employees with sunscreen with both UVA and UVB protection.
- Persons who notice skin problems should immediately consult medical personnel.

## **Heat Stress Monitoring and Work Cycle Management**

When strenuous field activities are part of on-going site work conducted in hot weather, the following guidelines should be used to monitor the body's physiological response to heat, and to manage the work cycle, even if workers are not wearing impervious clothing. These procedures should be instituted when the temperature exceeds 70°F and the tasks/risk analysis indicates an increased risk of heat stress

problems. Consult the HASP and a safety professional (e.g., Division EHS Manager, FSO) if questions arise as to the need for specific heat stress monitoring. In all cases, the site personnel must be aware of the signs and symptoms of heat stress and provide adequate rest breaks and proper aid as necessary.

**Measure Heart Rate** – Heart rate should be measured by the radial pulse for 30 seconds as early as possible in the rest period. The heart rate at the beginning of the rest period should not exceed 110 beats per minute. If the heart rate is higher, the next work period should be shortened by 33%, while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats per minute at the beginning of the next rest period, the following work cycle should be further shortened by 33%. The procedure is continued until the rate is maintained below 110 beats per minute.

**Measure Body Temperature** – When ambient temperatures are over 90°F, body temperatures should be measured with a clinical thermometer as early as possible in the rest period. If the oral temperature exceeds 99.6°F (or 1 degree change from baseline) at the beginning of the rest period, the following work cycle should be shortened by 33%. The procedure is continued until the body temperature is maintained below 99.6°F (or 1 degree change from baseline). Under no circumstances should a worker be allowed to work if their oral temperature exceeds 100.6°F.

**Measure Body Water Loss** – Body water loss greater than 1.5% of total body weight is indicative of a heat stress condition. Body weight is measured before PPE is donned and after the PPE is removed following a work cycle. Body water loss can be measured with an ordinary bathroom scale; however, the scale must be sensitive to one-half pounds increments. A worker is required to drink additional fluids and rest if their body water loss is greater than 1.5%.

**NOTE:** For purposes of this operating practice, a break is defined as a 15-minute period and/or until an individual's vital signs are within prescribed guidelines.

A physiological monitoring schedule is determined by following the steps below:

- Measure the air temperature with a standard thermometer.
- Estimate the fraction of sunshine by judging what percent the sun is out (refer to Table 1).
- Calculate the adjusted temperature based on the following formula:  
$$\text{Adjusted Temperature} = \text{Actual Temperature} + 13 \times (\text{where } X = \text{sunshine fraction from Table 1})$$
- Using Table 2, determine the physiological monitoring schedule for fit and acclimated workers for the calculated adjusted temperature.

The length of work period is governed by frequency of physiological monitoring (Table 2). The length of the rest period is governed by physiological parameters (heart rate and oral temperature).

Table 1. Percent Sunshine Factors  
Heat Stress Prevention and Monitoring

Percent Sunshine (%)	Cloud Cover	Sunshine fraction
100	No cloud cover	1.0
50	50% cloud cover	0.5
0	Full cloud cover	0.0

**Table 2. Physiological Monitoring Schedule  
Heat Stress Prevention and Monitoring**

Adjusted Temperature	Level D (Permeable clothing)	Level C, B, or A (Nonpermeable clothing)
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°F (30.8° - 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5° - 87.5°F (28.1° - 32.2°C)	After each 90 minutes of work	After each 60 minutes of work
77.5° - 82.5°F (25.3° - 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5° - 77.5°F (22.5° - 25.3°C)	After each 150 minutes of work	After each 120 minutes of work

**Example:** Site personnel anticipate wearing level C (impermeable clothing) during site activities. The air temperature is 80°F and there are no clouds in the sky (100% sunshine). The adjusted temperature is calculated in the following manner:

$$\text{Adjusted Temperature (Adj T } ^\circ\text{F)} = \text{Actual Temperature (Amb T } ^\circ\text{F)} + (13 \times \text{sunshine fraction})$$

$$\text{Adj T } ^\circ\text{F} = 80^\circ\text{F} + (13 \times 1.0)$$

$$\text{Adj T } ^\circ\text{F} = 93^\circ\text{F}$$

Using Table 2, the pulse rate, oral temperature and body water loss monitoring would be conducted after each 15 minutes of work. The adjusted temperature may need to be redetermined if the percent sunshine and ambient temperature changes drastically during site work.

If an individual's heart rate exceeds 110 beats per minute at the beginning of the rest period, that individual will continue to rest until his or her heart rate drops to baseline; the next work period is then decreased by 33%.

## **FLD 14 SITE SECURITY AND VIOLENCE-FREE WORKPLACE**

### **RELATED FLDs**

*FLD39 – Illumination*

### **PROCEDURE**

When WESTON's responsibilities include site control or security as in WESTON Office locations, one aspect to be addressed in the Site Health and Safety Plan (HASP), Business Continuity Plan, and Emergency Action Plan is security, or maintaining control of access to the site. Contingency plans are required to deal with unauthorized entry. Inquisitive and/or hostile persons may interfere with the site activities or work effort, jeopardizing their safety, as well as the safety of the field team.

#### **Recognition and Risk Assessment**

In the planning stages of a project and safety plan, the potential for security problems must be considered as physical hazards in the site-specific HASP. Risk assessment can be accomplished in the development stages of a project by listing in the HASP the most likely security problems that may be encountered. The Field Site Officer (FSO) must make decisions on the proper safety procedures and recommend them to the site manager. Each worker must evaluate the risk associated with his or her work and be actively alert to these hazards. Any site worker may stop work if safety procedures are not followed or the risk is too great.

Entry to a site by unauthorized persons presents risks to the persons entering and to WESTON personnel who may have to interact with such individuals. In many cases, the unauthorized entry is accidental or unintentional; however, contingency plans must also include procedures for instances when unauthorized entry is deliberate or for purposes which could pose a threat to site personnel.

During the assessment of risk for each site, security problems must be identified. The contingency plan should identify ways to prevent and respond to security problems. Security problems may arise from the site neighborhood due to:

- Socio-economic factors
- Client/neighbor relations
- Client/labor relations
- Poor lighting
- Remoteness and size of site
- Value of equipment and materials
- Sampling equipment tampering

#### **Prevention and Protection Program**

Prevention programs are an integral portion of Business Continuity and Emergency Action Plans or Security Contingency Plans. An effective preventative measure is to inform all interested parties of the site activities. An attempt should be made to notify state and local police, the fire department, and any local/state government officials of the project's purpose and scope. This will allow those authorities to answer questions posed to them by local residents and the media by preparing statements on the project's purpose or by informing the public where to call for further information. This will alleviate the problem of work stoppage due to field personnel answering questions.



One must ensure that the client understands and approves of any information released. In most cases, the liaison should be between the client and the public.

The Security Contingency Plan must:

- Identify the person responsible for implementing the Contingency Plan
- Establish the safety of WESTON personnel as the first priority
- Be designed to minimize the potential for confrontation and to obtain security assistance as quickly as possible
- Assign the enforcement of security functions to properly trained and authorized or bonded agencies
- Establish a communication procedure for obtaining assistance
- Be communicated to site personnel

Security problem prevention measures include:

- Community relations programs
- Visible security precautions (e.g., fences, "keep out" signs)
- Locking doors that are unattended during working hours and all doors during non-working hours
- Carefully defined rules/requirements for authorizing site access
- Clearly delineated access points and barriers around work area
- Vigilance by all site personnel
- Adequate lighting
- Working in pairs or teams in sensitive areas
- Locking and storing equipment securely
- Using discretion in discussions and conversations when off-site
- Working to avoid confrontation

In short, security prevention includes not advertising activities or inviting intrusion. Telephone numbers and instructions for obtaining security assistance must be clearly posted onsite.

Personnel onsite must always have access to communications. These communications may be to additional onsite personnel or, in certain situations, communications by team members to outside response agencies may be necessary.

### Workplace Violence

Workplace violence has become an unfortunate concern for any employer and employee. Workplace violence has proven to have little regard for location or status of the workplace. The information provided in Appendix A is considered guidance for developing awareness and violence prevention programs. The key to preventing workplace violence is to develop an objective awareness of all aspects of our work environment including the people within it.

### Terrorism

Terrorist events in recent years have added the need to ensure that Emergency Action Plans address bomb threats and precautions to reduce the potential for terrorist activities.

## **Bomb Threats**

WESTON's association with environmental issues has led to past experiences where local elements have identified WESTON with regulators and have threatened violence against WESTON personnel or property. Precautions to be taken include those listed above under security problem prevention and the following:

- Ensure that site and office personnel are made aware when WESTON activities increase the potential for work place violence.
- Use care in discussing involvement in Department of Defense, Department of Energy or other politically or socially sensitive issues outside of work.
- Train persons receiving and handling mail and deliveries in what to look for as potential for inflicting violence on a WESTON person or workplace. Examples include:
  - Misspelled words
  - Handwritten addresses
  - Mail from foreign countries
  - Excessive tape or postage
  - Restrictive markings (e.g., Confidential)
  - No return address

Emergency Action Plans must identify procedures to be taken if suspicious packages are received.

**APPENDIX A  
WESTON SOLUTIONS, INC.  
VIOLENCE-FREE WORKPLACE GUIDANCE**

## **WESTON SOLUTIONS, INC. VIOLENCE-FREE WORKPLACE GUIDANCE**

### **1. PURPOSE**

Weston Solutions, Inc. (WESTON) is committed to providing a safe workplace and high standards of health and safety for employees. Consistent with this commitment, the Company establishes this Violence-Free Workplace Guidance to define its zero-tolerance policy regarding workplace violence and to describe the programs that will support that policy.

### **2. POLICY**

It is WESTON's policy that violence will not be tolerated from any WESTON employee whether at or away from any work area, activity, or function. All reasonable and legal steps will be taken by WESTON staff and managers in the performance of their daily work activities to ensure that harassing, intimidating, threatening, or assaulting behaviors are avoided or prevented, and if observed are appropriately addressed. Any such behavior by a WESTON employee will be investigated and disciplinary action will be swift and severe if violent behavior is verified.

This policy also applies to threats or acts of violence perpetrated on WESTON work sites by non-WESTON personnel. WESTON employees will report instances of such behavior to their supervisors, and supervisors will take appropriate actions to protect potential victims and report improper behavior to the authorities.

### **3. TRAINING**

There are no regulatory requirements for training on the topic of preventing workplace violence, and this Guidance does not impose strict requirements for training employees on the topic. However, information regarding prevention of workplace violence will be disseminated as part of standard employee training sessions such as new employee indoctrination, management skills training, and refresher training for field staff. In addition, short training sessions ("brown-bag" courses) will occasionally include the information in this Guidance and related topics such as protection against violent acts such as robbery, car-jacking, and road rage, identifying situations that increase the likelihood of violence, and recognizing warning signs that predict violent behavior.

Indicators that may signal the risk potential of violent episodes

The risk of workplace violence can be minimized by the careful observation of behavior. Specific stress factors, behaviors, and personality traits have been associated, after the fact, with almost every incident of workplace violence. The presence of several of these indicators greatly increases the likelihood of violent actions. Most people will not just "snap". An escalating series of clues usually precedes an act of workplace violence. The risk of a violent outburst is greatly increased when a combination of the following warning signs are ignored.

- Boundary crossing includes pushing the limits of acceptable workplace behavior and continual testing of established rules.
- Chemical dependence upon alcohol and/or drugs may agitate or create paranoia and aggressive behavior.
- Concentration problems such as difficulty recalling instructions, forgetfulness, repetition of errors, and staring into space indicate a troubled employee.

- Depression causes nearly one in seven sufferers to commit a violent act either upon themselves or others. Symptoms of depression include; despair, ambivalence, slowed work pace, continual sad or blank facial expressions, withdrawal, self-condemnation and self-destructive behavior, hopelessness, helplessness, inappropriate guilt/shame, and poor personal hygiene.
- History of violence, including domestic abuse, is the best predictor of violent behavior.
- Inconsistent work patterns and attendance problems include periods of very high and very low productivity as well as unexplained or improbable excuses for absences.
- Obsessive interest in weapons and violent incidents may be revealed in casual conversations. An obsession with an impending apocalypse, or destruction of the world, is also common among unstable individuals.
- Obsession with job may cause a deeper sense of loss in the case of a poor performance review or termination. These individuals may be loners, having little else of importance in their lives.
- Pathological "blamers" cannot take responsibility for their own actions. They will not admit wrongdoing, even for minor mistakes, always blaming other people, the organization, or the system.
- Personality disorders can result in antisocial behavior such as repeated fighting and domestic violence. These individuals have little remorse about wrongdoing and will find ways to justify their violent behavior. Mood shifts, inappropriate anger, skillful manipulation of others, and preoccupation with self are indicators of personality disorder.
- Personal stress can result in excessive personal phone calls, desk pounding or throwing of objects, crying, lapses in attention, and general frustration with the surrounding environment. Debt, separation, divorce, or the death of a relative can all cause excessive stress.
- A pattern of poor interpersonal relationships may result in belligerence, overreaction to criticism, and verbal harassment.
- Psychosis is a loss of contact with reality which may be manifested as paranoia, loss of association during conversations, flat facial expressions, extreme ambivalence, hallucinations, poor insight, talking to self, or bizarre delusions.
- Romantic obsession is a fixation upon and idealized romantic love for another person. Behavioral signs may include stalking, numerous phone calls, spying, and unwanted visits and gifts.
- Safety issues like recklessness and a sudden increase in accident rate reveal lapses in concentration and disregard for personal/coworker safety.
- Unusual/changed behavior includes verbal outbursts, inappropriate remarks, and threats such as "they'll regret this". A series of escalating threats is a particularly important indicator of the potential violent actions.
- Paranoia - irrational thoughts of being "Set-up."

If an employee begins demonstrating any or a combination of the above indicators, it is important that management is informed and consults with the Manager of Human Resources to refer him or her to the Employee Assistance Program (EAP) or other counseling services as appropriate. It is imperative to respond in an empathic, caring and non-shaming manner, remembering that time is of the essence.

Oftentimes, violence in the workplace is committed by someone from outside a company. Therefore, when possible, it is important to have surveillance at the entrance of the office location or control using secured access. The following situations indicate a potential threat:

- The spouse or partner of an employee who is in an abusive relationship
- Rejected suitors, partners involved in divorce or separation procedures
- Ex-employees who have been fired or laid off
- Disgruntled customers
- Person committing armed robbery
- Persons involved in gang activities

#### Types of workplace violence and their characteristics

Workplace violence occurs in a variety of forms. These "types" are violence by strangers, violence by customers or clients, violence by co-workers, and violence by personal relationships. These types of workplace violence and their specific characteristics are described below:

**Type 1: Violence by strangers** -- involves verbal threats, threatening behavior or physical assaults by an assailant who has no legitimate business relationship to the workplace. The person enters the affected workplace to commit a robbery or criminal act. Violence by strangers is responsible for the majority of fatal injuries related to workplace violence nationally. Workplaces at risk of violence by strangers commonly include late-night retail establishments and taxi cabs.

**Type 2: Violence by presumably affected parties** -- involves verbal threats, threatening behavior or physical assaults by an assailant who either receives services from or is under the custodial supervision of the affected workplace or the victim. Assailants may have known or perceived claims against a client or stakeholder in a project or in the case of a labor dispute with WESTON or a subcontractor.

**Type 3: Violence by co-workers** -- involves verbal threats, threatening behavior or physical assaults by an assailant who has some employment related involvement with the workplace—a current or former employee, supervisor or manager, for example. Any workplace can be at risk of violence by a co-worker. In committing a threat or assault, the individual may be seeking revenge for what is perceived as unfair treatment. This type of violence accounts for a much smaller proportion of the fatal workplace injuries than violence by strangers.

**Type 4: Violence by personal relations** -- involves verbal threats, threatening behavior or physical assaults by an assailant who, in the workplace, confronts an individual with whom he or she has or had a personal relationship outside of work. Personal relations include a current or former spouse, lover, relative, friend or acquaintance. The assailant's actions are motivated by perceived difficulties in the relationship or by psycho-social factors that are specific to the assailant.

## 4. REQUIREMENTS

Violent behavior is considered indicative of personality characteristics that WESTON chooses to avoid in new hires and employees. As a result, WESTON may not hire individuals who have been convicted of violent activities. WESTON managers will verify the result of any background checks, references, or referrals and will carefully weigh any evidence of past violent actions in their consideration of candidates for hire.

WESTON will train its managers to recognize violent actions and tendencies, and requires that they investigate and respond in a timely and appropriate manner to any reported acts of violence by an employee. Managers shall consult with the Headquarters Managers of Human Resources and Environmental Health and Safety as necessary to determine an appropriate course of action. In addition, managers will be trained to recognize potentially inflammatory situations and handle them in ways that will not encourage violent behavior.

Employees are prohibited from bringing weapons that are clearly not required for the performance of work duties, such as firearms, onto work premises, including parking lots. WESTON reserves the right to inspect and search any item on the company's premises, including personal vehicles that are present in parking lots at any company work site. Employees may not consider any personal item brought to the workplace as exempt from search and inspection procedures.

Former employees and off-duty employees are prohibited from entering WESTON work areas unless required in the course of nonnal business activities and approved by a WESTON manager.

Disciplinary actions for workplace violence may range from counseling an employee to immediate termination of employment with WESTON. The latter may be enacted in cases of flagrant acts of physical violence and other cases warranting such action as determined by the Managers of Human Resources and Corporate Environmental Health and Safety.

Employees are encouraged to report any concerns or observations including threats, harassment, physical attacks, and domestic problems that may affect work performance to their supervisors. Supervisors will take appropriate measures to address violent acts by workers and to prepare for potential consequences at work that may result from domestic problems reported by employees.

Emergency action plans as part of each office's business continuity must address workplace security and actions to avoid and react to workplace violence.

## **FLD 19 WORKING OVER OR NEAR WATER**

### **RELATED FLDs**

*FLD02 – Inclement Weather*

*FLD05 – Heat Stress Prevention and Monitoring*

*FLD06 – Cold Stress*

*FLD18 – Operation and Use of Boats*

*FLD22 – Heavy Equipment Operation*

*FLD23 – Cranes, Rigging, and Slings*

*FLD24 – Aerial Lifts/Manlifts*

*FLD25 – Working at Elevation/Fall Protection*

### **RECOGNITION AND HAZARD ASSESSMENT**

Hazards associated with working around water include drowning, frostbite, hypothermia, and/or injury from falling into the water. Heat stress hazards may also be present. Carelessness, horseplay, or other unsafe acts could cause injury to personnel working over or near water. There are also hazards associated with untrained personnel operating equipment. Lack of personal protective equipment (PPE) or misuse of PPE could result in injury or death.

Proper precautions should be taken at all times when personnel are working over or near water. Whenever there is a body of water in close proximity to a work location, the proper safety procedures should be implemented. Requirements for equipment or procedures will be based on an evaluation of work tasks, drowning, and injury potential.

New field team members should be thoroughly indoctrinated in safe work practices pertinent to the work to which they are assigned.

### **PREVENTION AND PROTECTION PROGRAM**

When working over or near water where there is potential for drowning, engineering controls such as installation of guardrails, toeboards, and other PPE such as safety line systems, shall be used to prevent personnel from falling into the water. In addition, flotation devices must be worn and other lifesaving devices must be present. Personal flotation devices (PFDs) should be designed to float unconscious or helpless persons face up.

#### **Safety Nets**

Safety nets must be provided when workplaces are more than 25 feet above the ground or water surface, or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical.

- Where safety net protection is required, operations shall not be undertaken until the net is in place and has been tested.
- Nets shall extend 8 feet beyond the edge of the work surface where employees are exposed and shall be installed as close under the work surface as practical, but in no case more than 25 feet below such work surface. Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.
- It is intended that only one level of nets be required for bridge construction.



- The mesh size of nets shall not exceed 6 inches by 6 inches. All new nets shall meet accepted performance standards of 17,500 foot-pounds minimum impact resistance, as determined and certified by the manufacturer, and shall bear a label of proof test. Edge ropes shall provide a minimum breaking strength of 5,000 pounds.

### **General Safety Precautions**

Work shall be halted when significant wave action exists.

All general safety precautions will be adhered to when working over or near water to prevent accidents caused from careless behavior or horseplay.

Only personnel who are trained in the operation of marine equipment (e.g., boats, barges) will be allowed to operate the equipment.

Ramps for vehicle or personnel access to or between barges shall be of adequate strength, provided with guard rails, well-maintained and properly secured. For personnel access, a safe walkway may be substituted for the ramp. All access routes and passageways shall be kept free of ice, snow, grease, mud, and other obstructions. Nonslip surfaces shall be provided on all working decks, stair treads, ship ladders, platforms, catwalks, and walkways, particularly on the weather side of all doorways opening on deck.

Guardrails, bulwarks, or taut cable guardlines shall be provided for deck openings, elevated surfaces, and similar locations where persons may fall or slip. They shall be at least 42 inches high and have an intermediate rail.

If a Jacob's ladder is used, it will be of the double-rung or flat-tread type. It will be well-maintained and properly secured. The ladder will either hang without slack from its lashings or be pulled up entirely. When the upper end of the access-way rests on or is flush with the top of the bulwark (side of the ship above the upper deck), steps, properly secured and equipped with at least one hand rail approximately 33 inches in height, shall be provided between the top of the bulwark and the deck.

Obstructions will not be laid on or across gangways. The access-way will be adequately illuminated for its full length. All attempts will be made to place the access-way in a position that the load will not pass over personnel.

Any obstruction in a passageway that restricts normal passage shall be posted with warning signs or distinctively marked. Employees shall not be permitted to pass fore and aft, over or around the deck loads unless there is a safe passage. Decks and other working surfaces will be maintained in a safe condition and adequate safe walkways will be maintained for passage around the deck. All deck fittings and other obstructions that present stumbling hazards shall be painted yellow or marked with yellow trim.

Personnel will not walk along the sides of covered barges with coamings (raised frame to keep out water) more than 5 feet high unless there is a 3-foot clear walkway, a grab rail, or a taut handline.

Unless railings or other suitable protection exists, all personnel will use suitable protection against falling and/or drowning.

First-aid supplies should be aboard all lifesaving craft (or readily accessible) and arrangements for ambulance service should be made as location changes.

Personnel should be discouraged from jumping to or from any craft which is not secured, and from jumping between craft when a gangplank should be used.

Fall protection should be provided when working over or near water where there is a potential for falling or slipping into the water.

In areas subject to tidal flow or rising water levels, the Field Safety Officer (FSO) will monitor the water level to ensure that employees will not be trapped between a work area and the water level.

### **Life Saving Equipment**

Equipment and procedures will conform to U.S. Coast Guard (USCG) and/or Occupational Safety and Health Administration (OSHA) requirements and applicable local regulations.

Personnel working over or near water shall be provided with USCG-approved PFDs (life jackets or buoyant work vests), which shall be worn whenever there is potential drowning hazard. PFDs should be designed to float unconscious or helpless persons face up.

Prior to and after each use, PFDs and life preservers shall be inspected for defects which would alter their strength or buoyancy (e.g., rips, tears, holes). All defective units shall be removed from the site and replaced. At no times will defective units be used.

USCG-approved life rings (rope attachment not required) and ring buoys (rope attachment required) should have attached at least 90 feet of 3/8-inch solid braid polypropylene rope or equal. The life rings or ring buoys shall be readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet. One ring buoy or life ring shall be provided on each lifesaving skiff.

Lights conforming to 16 CFR 161.012 will be required whenever there is a potential need for life rings to be used after dark. Lights on life rings are required only in locations where adequate general lighting (e.g., floodlights) is not provided.

In locations where waters are rough or swift, or where manually-operated boats are not practical, a power boat suitable for the waters shall be provided and equipped for lifesaving.

The maximum number of passengers and weight that can safely be transported shall be posted on all launches, motorboats, and skiffs. This number shall not be exceeded and in no case shall the number of passengers (including crew) exceed the number of PFDs aboard. Outboard motors and skiffs shall meet the minimum flotation requirements of the USCG. A certification tag affixed to the hull is satisfactory evidence of compliance. An efficient whistle or signal device shall be provided on all powered vessels to give signals required by the navigation rules applicable to the waters on which the vessel is operated.

Any vessel, except those easily boarded from the water, shall provide at least one portable or permanent ladder of sufficient length to rescue a person overboard.

## **FLD 43 BIOLOGICAL HAZARDS - GENERAL**

### **RELATED FLDS**

*FLD 44 – Biological Hazards – Bloodborne Pathogens Exposure Control Plan – First Aid Providers*

*FLD 45 – Biological Hazards – Bloodborne Pathogens Exposure Control Plan – Work with Infectious Waste*

Field personnel and travelers may encounter biological hazards that include endemic hazards as follows: animals, insects, molds and fungus, and plants. In addition, personnel may be exposed to etiological agents (infectious diseases). An important part of health and safety planning and protection includes identifying and understanding local flora and fauna. Animals, insects, molds, fungus, and poisonous plants, and potential for exposure to infectious agents, which are also referred to as microbes, vary from site to site. Their likelihood of causing harm also varies. Risk assessment and protection protocol determinations include knowing the how, where, and what of hazardous types of plants, animals, insects, molds and fungus and infectious agents (microbes).

A set of guidance documents on the WESTON EHS Portal Site describe General Biological Hazards. While extensive, these guidance documents may not be all inclusive. They should provide a starting point for developing Accident Prevention Plans and Site-Specific Health and Safety Plans, but staff is encouraged to review additional information sources. A variety of resources are available to determine potential biological hazards at a work location, including the local health department.

Guidance documents on the EHS Portal Site provide information on the following biological hazards:

- Animals
- Insects
- Molds And Fungi
- Poisonous Plants
- Infectious Diseases (Microbes)

## FLD 46 CONTROL OF EXPOSURE TO LEAD

### REFERENCES

29 CFR 1926.62

### RELATED FLDs AND PROGRAMS:

*Occupational Medical Monitoring Program*  
*Personal Protective Equipment Program*  
*Respiratory Protection Program*

This FLD provides guidelines for controlling exposure to lead in the workplace. This WESTON-specific instruction applies corporate-wide and may require consultation and interpretation by a Certified Industrial Hygienist for unique applications.

Managers shall ensure employees are properly trained in the provisions of the standard prior to performing activities involving exposure to lead or lead compounds.

### INTRODUCTION

Based upon limited differences in compliance requirements between the General Industry and the Construction Industry Standards WESTON policy is to follow compliance requirements as determined in 29 CFR 1926.62, "Lead Exposure in Construction" for all activities which involve occupational exposure to lead. The forms of lead to which the standard applies is defined to include metallic lead, all inorganic lead compounds, and organic lead soaps.

This practice applies to occupational exposure to lead at or above the Action Level (AL). Specific requirements for medical monitoring, respiratory protection, hygiene facilities, etc. are not mandated until exposure reaches the AL or the Permissible Exposure Level (PEL).

The lead standard includes requirements addressing exposure assessment, methods of compliance, respiratory protection, protective clothing and equipment, hygiene facilities and practices, medical surveillance, medical removal protection, employee information and training, signs, recordkeeping, and observation of monitoring.

The lead standard lists specific tasks which require conformance with the most restrictive portions of the standard until monitoring indicates otherwise. The tasks include; abrasive blasting, welding, cutting and burning of steel or structures containing or coated with lead or lead products.

### Permissible Exposure Level (PEL) and Action Level (AL)

For both the general industry and the construction industry, the PEL for lead exposure is 50 $\mu\text{g}/\text{m}^3$  and the AL is 30 $\mu\text{g}/\text{m}^3$ .

For exposures greater than an 8-hour day, the time-weighted average (TWA) for that day must be reduced according to the formula:

- Allowable employee exposure (in  $\mu\text{g}/\text{m}^3$ ) = 400 divided by the hours worked that day.

## Potential Sources of Exposure

For WESTON operations, potential sources of exposure include, but are not limited to; industrial hygiene surveys, wet-process paint chip sampling, and drilling operations where lead is present as a contaminant.

In addition, certain "Trigger Tasks" such as; welding and cutting on lead paint or lead-contaminated structures, dry sanding or scraping, soldering and pipe-fitting operations involving lead-containing materials and dry cleanup of lead contaminated surfaces are potential exposure operations. Specific monitoring and protection requirements follow.

## Exposure Assessment and Initial Requirements

Each task conducted by WESTON personnel must be evaluated as to the potential for exposure to lead. In accordance with the standard, exposure is that which would occur regardless of the use of respiratory protection. Therefore, any concentration must be evaluated as to the potential for employee exposure at or above the AL.

## Hygiene Surveys and Sampling Tasks

Previous data less than 12 months old may be used as the initial exposure assessment in order to determine appropriate levels of protection. This data must have been collected under workplace and environmental conditions closely resembling current task activities.

Defensible data from previous soil sampling efforts may be utilized for determining preliminary levels of protection, by inserting soils concentration data into the action levels formula. Refer to the Corporate Environmental Health and Safety Portal Site under "Technical Resources" for guidance on calculating Action Levels. Personal air sampling must still be performed in order to verify exposure until and/or unless comprehensive background data (reviewed by an industrial hygienist) are available to justify omitting personal sampling.

Other objective data may be utilized in lieu of initial monitoring provided the objective data is documented and appropriate for the materials and work processes/activities conducted.

## Trigger Tasks

Until such time as an exposure assessment (either through personal air sample results or approved and documented historic data) has been conducted which indicates actual exposures, the following task-specific guidelines are applicable.

- Where lead-containing coatings or paint are present: Manual demolition of structures (e.g., dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems; and/or spray painting with lead paint. It will be presumed that the level of lead in the air is above the PEL but, below  $500 \mu\text{g}/\text{m}^3$ . The minimum respiratory protection for these activities is a properly fitted half-face respirator with N, R, or P100 filter cartridges. Respirators providing higher levels of protection may be used and an employee has the right to request a powered air-purifying respirator (PAPR) with N, R, or P100 Cartridges.
- Where activities involve using lead-containing mortar; lead burning where lead-containing coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal, it will be presumed that the level of lead in the air is above the  $500 \mu\text{g}/\text{m}^3$  but below  $1250 \mu\text{g}/\text{m}^3$ . The minimum respiratory protection for these activities is a loose-

fitting hood or helmet PAPR with N, R, or P100 filter cartridges; a hood or helmet supplied air respirator operated in continuous flow mode (e.g. type CE abrasive blasting helmet operated in continuous flow mode). A Quantitative Fit Test is required for use of respiratory protection for these activities. Respirators providing higher levels of protection may be used. For WESTON personnel the minimum respiratory protection is a tight fitting full face respirator with N, R, or P100 filter cartridges unless an exception is approved by a WESTON Certified Industrial Hygienist.

Note: An employee has the right to request a PAPR with N, R, or P 100 Cartridges.

- Where activities involve: Abrasive blasting, welding, cutting, or torch burning, the respiratory protection required is any supplied air respirator operated in positive pressure mode.
- For any activity where it is reasonably believed that exposure over the PEL will result, the respiratory protection is: Half- or Full-Face air purifying respirator (APR) with appropriate high efficiency filters; PAPRs with appropriate cartridges; or Supplied Air Respirators. Actual selection is dependent upon the potential for exposure.

Until the employee exposure assessment (personnel monitoring or approved historic data) has been performed and actual employee exposure has been determined, all employees performing the tasks described in the paragraphs above in this section must be supplied with interim protection as follows:

- Appropriate respiratory protection.
- Appropriate personal protective clothing and equipment.
- Change areas.
- Hand washing facilities.
- Biological monitoring.
- Training.

## Monitoring

### Initial Monitoring Requirements

The exposure assessment results will be used to determine whether any employee is being exposed to lead at or above the action level of  $30\mu\text{g}/\text{m}^3$ .

With the exception of allowances described below, monitoring for worker exposure requires collection of personal air samples which are representative of a full shift for each task involving known or potential exposure and any of the following, relevant considerations:

- Any information, observations, or calculations which would indicate employee exposure to lead;
- Any previous measurements of airborne lead; and
- Any employee complaints of symptoms which may be attributable to exposure to lead.

Note: Monitoring for the initial determination, where performed, may be limited to a representative sample of the exposed employees who the employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

### Historical Data

Where WESTON has previously monitored for lead exposures, such earlier monitoring results may be used to satisfy the requirements of initial monitoring and monitoring frequency, if the sampling and analytical methods meet the accuracy and confidence levels as indicated in paragraph of 29 CFR

1926.62(d)(9). Additionally, the data must have been obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the current operations.

### **Objective Data**

Where objective data demonstrates that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the AL during processing, use, or handling, such data may be relied upon instead of performing initial monitoring.

An accurate record documenting the nature and relevancy of objective data used in assessing employee exposure in lieu of exposure monitoring, must be maintained.

**Exception:** Objective data, as described above, is not permitted to be used for exposure assessment in connection with the specific activities previously discussed as "Trigger Tasks".

### **Positive Initial Determination and Initial Monitoring**

Where a determination shows the possibility of any employee exposure at or above the AL, monitoring must be conducted which is representative of the exposure for each employee in the workplace who is exposed to lead.

### **Negative Initial Determination**

Where a determination is made that no employee is exposed to airborne concentrations of lead at or above the AL a written record of such determination must be made.

### **Frequency**

If the initial determination reveals employee exposure to be below the AL, further exposure determination need not be repeated except as otherwise provided in the last paragraph of this section.

If the initial determination or subsequent determination reveals employee exposure to be at or above the AL, but at or below the PEL monitoring must be conducted at least every 6 months.

If the initial determination reveals that employee exposure is above the PEL, monitoring must be performed quarterly.

Whenever there has been a change of equipment, process, control, or personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the AL or may result in employees already exposed at or above the AL being exposed above the PEL, additional monitoring must be conducted in accordance with this practice.

### **Employee Notification**

Each employee shall be notified in writing of the results which represent that employee's exposure within five working days after completion of the exposure assessment.

Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL a written notice is required stating that the employee's exposure was at or above that

level and includes a description of the corrective action taken or to be taken to reduce exposure to below that level.

Exposure monitoring records must be maintained as required in 29 CFR 1926.62(n)(1). Minimum information includes:

- Sampling data and procedures utilized.
- Description of sampling and analytical methods used.
- Type of respiratory protection used.
- Name, social security number, job classification for specific persons monitored and/or representative groups.
- Any environmental variables which could impact measurements.

### **Engineering Controls**

As in all cases of potential or known exposure to a hazardous environment, engineering controls are to be evaluated as to effectiveness and appropriateness under the site-specific circumstances. Controls must be listed in the site-specific Health and Safety Plan (HASP) and implemented as appropriate or feasible. Appropriate engineering controls include dust suppression, use of longer torches in cutting operations, use of mechanical shears in lieu of torches, vacuum blasting methods, and local ventilation.

### **Ventilation**

When mechanical ventilation is used to control lead exposure, the mechanical performance of the system must be evaluated and documented as to its effectiveness in controlling exposure.

### **Work Practice Controls**

WESTON will not use administrative controls such as worker rotation as a means of reducing employees' TWA exposure to lead unless expressly approved by a qualified safety professional.

### **General Housekeeping**

All surfaces shall be maintained as free as practicable of accumulations of lead.

Floors and other surfaces where lead accumulates shall, wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.

Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found ineffective.

Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.



## Hygiene Facilities and Practices

In control zone areas where employees are exposed to lead above the PEL without regard to the use of respirators, food or beverage shall not be present or consumed, tobacco products shall not be present or used, and cosmetics shall not be applied.

Clean change areas shall be provided for employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators.

To prevent cross-contamination, change areas, as needed, shall be equipped with separate storage facilities for protective work clothing and equipment and for street clothes.

Employees exposed to lead concentrations greater than the AL shall not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.

Shower facilities shall be provided, where feasible, for use by employees whose airborne exposure to lead is above the PEL. Adequate supplies, cleansing agents, and towels shall be provided.

Lunchroom facilities or eating areas shall be as free as practicable from lead contamination and readily accessible to employees.

Employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, must wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

Employees shall not enter lunchroom facilities or eating areas with protective work clothing or equipment which has been contaminated by surface lead dust in concentrations exceeding the AL.

Adequate hand washing facilities shall be provided for use by employees exposed to lead in concentrations exceeding the AL. These facilities must be designed in accordance with 29 CFR 1926.51(f). Where showers are not provided, employees must wash their hands and face at the end of the work-shift.

**Note:** Short-term (less than one week) field activities may utilize appropriate personal decontamination sequences such as those allowed under 29 CFR 1910.120 (HAZWOPER) in lieu of contained clean rooms, showers and change facilities.

## Personal Protective Clothing and Equipment

Where exposures to lead above the AL (without regard to the use of respirators) have been validated by monitoring or where employees are exposed to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and as interim protection for employees performing tasks as specified as "Trigger Tasks", affected employees must use appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:

- Coveralls or similar full-body work clothing;
- Gloves, hats, and shoes or disposable shoe coverlets; and
- Face shields, vented goggles, or other appropriate protective equipment as necessary.
- Change areas in accordance with 29 CFR 1926.62(i)(2).
- Hand washing facilities in accordance with 29 CFR 1926.62(i)(5).

- Biological monitoring in accordance with 29 CFR 1926.62(j)(1)(i), to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and;
- Training as required under 29 CFR 1926.62(l)(1)(i) regarding 29 CFR 1926.59, Hazard Communication; training as required under 29 CFR 1926.62(l)(2)(ii)(C), regarding use of respirators; and training in accordance with 29 CFR 1926.21, Safety training and education.

The HASPs and fixed facility operating procedures must list specific and appropriate PPE that will be utilized for each task involving known or potential exposure to lead or lead compounds.

PPE utilized will be disposable garments. Personnel in maintenance or fixed operations may use re-usable garments only under the direction and approval of a qualified safety professional.

Garments will be disposed of at the end of a shift or upon leaving a controlled zone whichever comes first. Under no conditions will any employee be allowed to take contaminated garments with the employee to his or her home.

Proper decontamination of re-usable equipment/PPE must be conducted prior to allowing these materials to leave the site.

Contaminated protective clothing which is to be cleaned, laundered, or disposed of, must be placed in a closed container in the change area which prevents dispersion of lead outside the container.

Containers of contaminated (defined as when exposures are greater than or equal to the PEL) protective clothing and equipment must be labeled as follows:

"Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations."

The removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air shall be prohibited.

#### Respirators

For WESTON operations, respirators shall be used in accordance with WESTON's Respiratory Protection Program in the following circumstances:

- Whenever an employee's exposure to lead exceeds the AL;
- In work situations in which engineering controls and work practices are not sufficient to reduce exposures to or below the AL;
- Whenever an employee requests a respirator; and
- As interim protection for employees performing "Trigger-tasks".

Respirators approved for use are limited to:

- Properly fitted half-face APRs with high-efficiency filters for concentrations not exceeding  $500\mu\text{g}/\text{m}^3$ .

- A loose fitting hood or helmet PAPR with N, R, or P100 filter cartridges; a hood or helmet supplied air respirator operated in continuous flow mode (e.g. type CE abrasive blasting helmet operated in continuous flow mode for concentrations not to exceed 1250  $\mu\text{g}/\text{m}^3$ ).
- Properly fitted full-face APRs with high efficiency filters for concentrations not in excess of 2,500  $\mu\text{g}/\text{m}^3$ .
- Tight fitting full-facepiece PAPRs with high-efficiency filters for concentrations not in excess of 2,500  $\mu\text{g}/\text{m}^3$ .
- Full-facepiece, positive-pressure supplied air respirators (SARs) for concentrations not in excess of 100,000  $\mu\text{g}/\text{m}^3$ .
- Full-facepiece self-contained breathing apparatus (SCBA) for concentrations greater than 100,000  $\mu\text{g}/\text{m}^3$  or for unknown concentrations.

Respirators specified for higher concentrations can be used at lower concentrations of lead.

A full facepiece is required if the lead aerosols cause eye or skin irritation at the use concentrations.

Fit-testing must be conducted in accordance with WESTON's Respiratory Protection Program and 29 CFR 1910.134.

#### Signs and Labels

The following warning signs shall be posted in each work area where exposure to lead is above the PEL.

WARNING

LEAD WORK AREA

POISON

NO SMOKING OR EATING

Signs required by this paragraph must be illuminated and cleaned as necessary so that the legend is readily visible from all areas of approach to the work area.

#### Medical Surveillance

Initial medical surveillance in the form of blood testing shall be made available to employees occupationally exposed on any day to lead at or above the AL.

Biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels will be performed during initial medical surveillance and must be performed on the following schedule:

- For any employee anticipating work at a site or operation where the known or potential exposure (without regard to the use of respiratory equipment) equals or exceeds the AL, biological monitoring must be conducted prior to the start of that person's work on site or within 48 hours of such determination. Post-site work monitoring must be conducted within one week of that person's completion of site work. NOTE: This initial determination and need for blood testing should be reviewed by a Certified Industrial Hygienist; particularly if a negative determination is made. Appropriate documentation must be placed in the site files for future reference.

- During long-term (greater than 30 days) site activities for each employee with known or potential exposure to or greater than the AL for 30 or more days per year, at least every 2 months for the first 6 months and every 6 months thereafter.

Within 5 working days after the receipt of biological monitoring results, WESTON's medical consultant will notify each employee in writing of his or her blood lead level. The content of and review mechanisms for medical examinations made available shall be pursuant to 29 CFR 1926.62(j).

For any employee found to have a blood lead level at or above 40µg/100g of whole blood, testing will be performed every 2 months until two consecutive blood samples and analysis indicate a blood lead level below 40µg/100g of whole blood.

#### Medical Removal and Protection

WESTON will temporarily remove an employee from work having an exposure to lead at or above the AL on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to 29 CFR 1926.62(k) indicate that the employee's blood lead level is at or above 50 µg/dl.

WESTON will remove an employee from work having an exposure to lead at or above the AL on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

Note: Medical removal protections shall be strictly as interpreted under 29 CFR 1926.62(k) and other applicable Acts or Standards.

In the event any employee must be removed from work activities due to blood lead levels records and documents must be maintained in the project files as required in 29 CFR 1910.1025(n) or 1926.62(n).

#### Education and Training

All WESTON personnel with potential occupational exposure to lead will be provided with training, initially and annually thereafter, as to:

- Content of the standards 29 CFR 1910.1025 and 1926.62.
- The nature of operations which could result in exposure at or above the action level on any one day.
- Respirator use, selection and maintenance.
- Medical surveillance and medical removal requirements and protections.
- Health effects of lead.
- Engineering and work practice controls.
- WESTON's Lead Exposure Compliance Program and associated site specific plans.

#### Recordkeeping and Training

Documentation of training records in the form of training materials and attendance sheets will be maintained in the project files.

## **Exposure Assessments**

Monitoring and data sheets used to determine employee exposures must be maintained on all sites with lead exposure. As required under 29 CFR 1910.20, copies of all documentation must be maintained in the project files.

Exposure assessment and monitoring records must include:

- The date(s), number, location and results of samples taken.
- The determination that the sampling procedures are representative of employee exposure.
- A description of the sampling and analytical procedures used.
- The type of respiratory protection used, if any.
- The name, employee number, and job classification of the employee(s) monitored.
- Environmental conditions encountered.

Objective data which is or will be used for determining exemption from initial monitoring as allowed under 29 CFR 1926.62(d)(3) must be maintained in the project files. Objective data utilized is required to be maintained for a period of at least 30 years.

## **Medical Surveillance**

Medical surveillance will be conducted and records will be maintained in accordance with WESTON's Occupational Medical Monitoring Program requirements as indicated in 29 CFR 1910.1025(n) and/or 1026.62(n).

## **Task Specific Methods of Control**

Based upon WESTON policy, each site activity involving potential exposure to lead must be identified and analyzed through a Task/Risk Analysis as a part of the site-specific HASP. This Task/Risk Analysis must identify methods, materials and equipment utilized in limiting exposure. Appendix 1 provides Actions/Requirements Based on Task. Appendix 2 provides a Task/Risk Analysis Inspection Checklist.

Current HASP forms can be obtained through the Division Environmental Health and Safety Manager, Corporate Environmental Health and Safety or on the WESTON EHS Portal Site.

## **Hazard Communication and Multi-Employer Sites**

On multi-employer sites where the activities of one contractor/employer will or may have a direct impact with potential exposure to other contractors/employers, the Site Manager is responsible for contacting a representative of the potentially affected parties. The Site Manager will inform them of the lead exposure potential, control methods utilized, protective procedures to be followed, and the limits of lead contamination as known.

## **Inspections and Audits**

The Project Manager is responsible for providing (at a minimum) weekly documented inspections of the work site. In accordance with the requirements of the lead standard these inspections must encompass all areas of the site where exposure to lead is at or above the PEL (Appendix 2). Additionally, any equipment, PPE, signs, and decontamination or disposal operations must be evaluated as to compliance with the standard and WESTON Policy regardless of the exposure concentration. Any non-compliance must be noted and corrected.

**APPENDIX 1**  
**ACTIONS/REQUIREMENTS BASED UPON TASK:**

**1. Exposure Less than Action Level (AL):**

- Initial Exposure Assessment
- Hand Washing Facilities
- Proper Housekeeping
- Medical Removal Protection

**2. Exposure at or over AL but less than Permissible Exposure Limit (PEL):**

- Initial Exposure Assessment
- Hand Washing Facilities
- Periodic Exposure Monitoring
- Biological Monitoring and Recordkeeping
- Annual Training
- Proper Housekeeping
- Medical Removal Protection

**3. Exposure at or over AL but less than the PEL (30 or more days/year):**

- As above and
- Medical Examinations and Recordkeeping

**4. Exposure at or greater than the PEL:**

- Initial Exposure Assessment
- Hand Washing Facilities
- Periodic Exposure Monitoring
- Biological Monitoring and Recordkeeping
- Annual Training
- Proper Housekeeping
- Appropriate Respiratory Protection
- Warning Signs
- Proper PPE
- Proper Change Areas
- Decontamination Facilities/Showers as feasible
- Separate Eating Areas
- Medical Examinations and Recordkeeping
- Medical Removal Protection

**5. Exposure to Trigger Tasks (until exposure is verified):**

- See requirements under greater than PEL exposure

**APPENDIX 2**  
**TASK/RISK ANALYSIS AND INSPECTION CHECKLIST**  
**FOR ACTIVITIES WITH POTENTIAL FOR LEAD EXPOSURE**

This task involves the known or potential risk of exposure to lead or lead-containing materials. As such, requirements as indicated in 29 CFR 1910.1025 or 29 CFR 1926.62 and WESTON's Written Lead Exposure Compliance Program (FLD 46) will be followed.

**Task Description:**


**Equipment Required/Used:**


**Training Required/Used:**


**Initial Exposure Determination: (Indicate Method[s] Used)**

	Personal Sampling
	Objective Data (attach or indicate location of data)
	Historical Data (attach or indicate location of data)

**PPE Includes:**

	Respiratory Protection (specify)		Shoes or Shoe Covers (specify)
	Coveralls (disposable)		Face Shield, Goggles or Safety Glasses (specify)
	Coveralls (reusable)		Other (specify)
	Gloves (specify)		
	Head Covering (specify)		



**Inspection Items:**

Y/N	Item/Action
	Personnel are wearing appropriate PPE.
	PPE is in good condition.
	PPE is removed and disposed of in a manner to preclude airborne release of lead or lead compounds.
	Will clothing be laundered?
	If yes, then ensure notification of vendor as required.
	Will clothing be disposed of?
	If yes, container of disposable clothing and contaminated materials is closed and appropriately labeled.
	All surfaces are maintained (as practicable) free of lead or lead compounds.
	Appropriate methods and procedures are used for cleanup of surfaces with lead contamination.
	If vacuum is utilized, it is equipped with appropriate HEPA filter.
	If exposure is known or suspect to be at or greater than the PEL, then:
	There is no eating, drinking, cosmetic application, or tobacco consumption in contaminated areas.
	Change areas are available.
	Change areas are maintained to prevent cross-contamination of work and street clothing.
	No work clothing which has been known or is potentially contaminated is allowed to be worn off-site or in on-site clean areas.
	Clean, sanitary showers (where feasible) are maintained.
	All personnel shower prior to leaving the site at end of shift.
	Clean, sanitary eating areas are provided.
	Hand washing facilities are provided in all cases.
	Personnel are required to wash hands and face upon leaving the contaminated area.

**Comments:**

## **APPENDIX G**

### **SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM - FORM 28**

## SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM-FORM 28

### *Location-Specific Hazard Communication Program/Checklist*

To ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will use this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communication Program as a means of meeting site- or location-specific requirements.

While responsibility for activities within this document reference the WESTON Safety Officer (SO), it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following Hazard Communication Program has been established. All affected personnel will participate in the Hazard Communication Program. This written program, as well as WESTON's Corporate Hazard Communication Program, will be available for review by any employee, employee representative, representative of OSHA, NIOSH, or any affected employer/employee on a multi-employer site.

- ☐ Site or other location name/address: Raritan Bay Slag Removal/Laurence Harbor, NJ
- ☐ Site/Project/Location Manager: Daniel J. Gaughan
- ☐ Site/Location Safety Officer: Daniel J. Gaughan
- ☐ List of chemicals compiled, format: ☒ HASP ☐ Other: \_\_\_\_\_
- ☐ Location of MSDS files: HASP
- ☐ Training conducted by: Name: \_\_\_\_\_ Date: \_\_\_\_\_
- ☐ Indicate format of training documentation: ☐ Field Log: ☐ Other: \_\_\_\_\_
- ☐ Client briefing conducted regarding hazard communication: \_\_\_\_\_
- ☐ If multi-employer site (client, subcontractor, agency, etc.), indicate name of affected companies:  
EPA
- ☐ Other employer(s) notified of chemicals, labeling, and MSDS information: \_\_\_\_\_
- ☐ Has WESTON been notified of other employer's or client's hazard communication program(s), as necessary? ☐ Yes ☐ No

### *List of Hazardous Chemicals*

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or placed in a centrally identified location with the MSDSs. Further information on each chemical may be obtained by reviewing the appropriate MSDS. The list will be arranged to enable cross-reference with the MSDS file and the label on the container. The SO or Location Manager is responsible for ensuring the chemical listing remains up-to-date.

### *Container Labeling*

The WESTON SO will verify that all containers received from the chemical manufacturer, importer, or distributor for use on-site are clearly labeled.

The SO is responsible for ensuring that labels are placed where required and for comparing MSDSs and other information with label information to ensure correctness.

**Material Safety Data Sheets (MSDSs)**  
**FORM 28**

The SO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SO will ensure that procedures are developed to obtain the necessary MSDSs and will review incoming MSDSs for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SO will call the manufacturer and have an MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDSs for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDSs will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SO or the designated alternate. When a revised MSDS is received, the SO will immediately replace the old MSDS.

**Employee Training and Information**

The SO is responsible for the WESTON site-specific personnel training program. The SO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site, or whenever a new hazard is introduced into the work area, employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the work site.
- Physical and health risks of the hazardous chemicals.
- The signs and symptoms of overexposure.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- Location of the MSDS file and Written Hazard Communication Program.
- How to determine the presence or release of hazardous chemicals in the employee's work area.
- How to read labels and review MSDSs to obtain hazard information.
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.
- Hazardous, nonroutine tasks to be performed (if any).
- Chemicals within unlabeled piping (if any).

**Hazardous Nonroutine Tasks**

When employees are required to perform hazardous nonroutine tasks, the affected employee(s) will be given information by the SO about the hazardous chemicals he or she may use during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee, and emergency procedures.

**Chemicals in Unlabeled Pipes**

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee will contact the SO, at which time information as to the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and the safety precautions that should be taken will be determined and presented.

**Multi-Employer Work Sites**

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of the SO and the Site Manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers, as requested. MSDSs will be available for viewing, as necessary. The location, format, and/or procedures for accessing MSDS information must be relayed to affected employees.